GenCore version 5.1.5

OM nucleic - nucleic search, using sw model

Run on: May 15, 2003, 01:04:24 ; Search time 749 Seconds
(without alignments)
10899.191 Million cell updates/sec

Title: US-09-804-472-1
Perfect score: 3625
Sequence: 1 gaacccagttgcttcagcga.....aaaaaaaaaaaaaaaaaaaa 3625

Scoring table: IDENTITY_NUC
Gapop 10.0 , Gapext 1.0

Searched: 2185239 seqs, 1125999159 residues

Total number of hits satisfying chosen parameters: 4370478

Minimum DB seq length: 0
Maximum DB seq length: 2000000000

Post-processing: Minimum Match 0%
Maximum Match 100%
Listing first 45 summaries

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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

	Result No.	Score	% Query Match	Length	DB	ID	Description
	1	2554	70.5	3263	24	ABQ73032	Human chloride cha
	2	1188.6	32.8	3173	22	AAK52392	Human polynucleoti
	3	877.8	24.2	3126	21	AAC95411	Cat flea HMT VG Cl
	4	877.8	24.2	3126	21	AAC95412	Cat flea HMT VG Cl
	5	873.8	24.1	2553	21	AAC95413	Cat flea HMT VG Cl
c	6	873.8	24.1	2553	21	AAC95414	Cat flea HMT VG Cl
	7	791	21.8	1968	21	AAC95407	Cat flea HMT VG Cl
c	8	791	21.8	1968	21	AAC95408	Cat flea HMT VG Cl
	9	789.6	21.8	3366	22	AAD05207	Drosophila melanog
	10	736.4	20.3	2191	21	AAC95405	Cat flea HMT VG Cl
c	11	736.4	20.3	2191	21	AAC95406	Cat flea HMT VG Cl
	12	701.2	19.3	4794	23	AAS68176	DNA encoding novel
	13	701.2	19.3	4794	23	AAS69658	DNA encoding novel
	14	701.2	19.3	4794	23	AAS74999	DNA encoding novel
	15	701.2	19.3	4794	23	AAS84089	DNA encoding novel
	16	701.2	19.3	4795	23	AAS74440	DNA encoding novel
	17	701.2	19.3	4802	23	AAS72071	DNA encoding novel
	18	701.2	19.3	4803	23	AAS78637	DNA encoding novel
	19	701.2	19.3	5357	23	AAS73335	DNA encoding novel
	20	643.8	17.8	3452	23	ABL09159	Drosophila melanog
	21	602.8	16.6	1811	22	ABA08962	Human voltage gate
	22	602.8	16.6	1811	22	AAK53376	Human polynucleoti
c	23	404.6	11.2	7344	23	ABL09158	Drosophila melanog
	24	404	11.1	9300	22	ABA15594	Human nervous syst
	25	333.4	9.2	335	21	AAC07377	Human secreted pro
c	26	297.4	8.2	433	24	ABL64663	Stomach cancer rel
c	27	297.4	8.2	433	24	ABL67190	Thyroid cancer rel
c	28	283.6	7.8	546	22	AAK15841	Human brain expres
c	29	283.6	7.8	546	22	AAK41584	Human bone marrow
	30	245	6.8	498	22	ABA69311	Human foetal liver
	31	245	6.8	498	22	AAI24192	Probe #14125 for g
	32	222.8	6.1	493	22	ABA56738	Human foetal liver
	33	222.8	6.1	493	22	AAI15005	Probe #4938 for ge
c	34	196.8	5.4	485	22	ABA65100	Human foetal liver
c	35	196.8	5.4	485	22	ABA32205	Probe #10671 for g
c	36	196.8	5.4	485	22	AAK13522	Human brain expres
	37	194	5.4	194	24	ABQ73039	Human chloride cha
	38	164.2	4.5	270	24	ABQ73040	Human chloride cha
	39	161.2	4.4	235	24	ABQ73033	Human chloride cha
	40	152.4	4.2	2310	24	AAK98344	Chinese hamster ex
	41	152.4	4.2	14507	18	AAT73568	Expression augment
	42	152.4	4.2	14507	21	AAZ88869	Chinese hamster 2A
	43	152.4	4.2	14507	24	AAK98343	Chinese hamster ex
	44	152.4	4.2	14507	24	ABA92370	Chinese hamster ov
	45	150.6	4.2	293	14	AAQ61122	Human brain Expres

ALIGNMENTS

RESULT 1
ABQ73032
ID ABQ73032 standard; cDNA; 3263 BP.
XX
AC ABQ73032;
XX
DT 24-SEP-2002 (first entry)
XX
DE Human chloride channel encoding cDNA sequence SEQ ID NO:1.
XX
KW Human; chloride channel; ClC-N3A; ClC-N3B; CFTR; cystic fibrosis;
KW cystic fibrosis transmembrane conductance regulator; ClC-3B;
KW respiration; gene; ss.
XX
OS Homo sapiens.
XX
FH Key Location/Qualifiers
FT CDS 389..2989
FT /*tag= a
FT /product= "chloride channel protein"
XX
PN WO200244369-A1.
XX
PD 06-JUN-2002.
XX
PF 30-NOV-2001; 2001WO-JP10499.
XX
PR 30-NOV-2000; 2000JP-0365103.
XX
PA (BANY) BANYU PHARM CO LTD.
PA (FURU/) FURUKAWA T.
PA (OGUR/) OGURA T.

XX
PI Furukawa T, Ogura T;
XX
DR WPI; 2002-557541/59.
DR P-PSDB; ABB81616.
XX
PT Human chloride channel CIC-3B as outward rectifying chloride channel
PT with chloride selectivity and activated by forskolin in presence of
PT cystic fibrosis transmembrane conductance regulator, useful in
PT diagnosis of cystic fibrosis -
XX
PS Claim 9; Page 27-29; 41pp; Japanese.
XX
CC The present sequence encodes a human chloride channel protein (A).
CC (A) has respirational activity. (A) can be used in the diagnosis of
CC and development of drugs for cystic fibrosis. (A) is a ClC-3-selective
CC splicing subtype, which is an outward rectifying chloride channel with
CC chloride selectivity and is activated by forskolin in the presence of
CC cystic fibrosis transmembrane conductance regulator (CFTR).
XX
SQ Sequence 3263 BP; 919 A; 627 C; 800 G; 917 T; 0 other;

Query Match 70.5%; Score 2554; DB 24; Length 3263;
Best Local Similarity 97.2%; Pred. No. 0;
Matches 2640; Conservative 0; Mismatches 0; Indels 76; Gaps 1;

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Qy    237 GGAACTCATTATACAATGACAAATGGAGGCAGCATTAACAGTTCTACACATTTACTGGAT 296
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Db    548 GGAACTCATTATACAATGACAAATGGAGGCAGCATTAACAGTTCTACACATTTACTGGAT 607

Qy    297 CTTTTGGATGAACCAATTCCAGGTGTTGGTACATATGATGATTTCCATACTATTGATTGG 356
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Db    608 CTTTTGGATGAACCAATTCCAGGTGTTGGTACATATGATGATTTCCATACTATTGATTGG 667

Qy    357 GTGCGAGAAAAATGTAAAGACAGAGAAAGGCATAGACGGATCAACAGCAAAAAGAAAGAA 416
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Qy    417 TCAGCATGGGAAATGACAAAAAGTTTGTATGATGCGTGGTCAGGATGGCTAGTAGTAACA 476
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Qy    477 CTAACAGGATTGGCATCAGGGGCACTGGCCGGATTAATAGACATTGCTGCCGATTGGATG 536
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Qy    537 ACTGACCTAAAGGAGGGCATTTGCCTTAGTGCGTTGTGGTACAACCACGAACAGTGCTGT 596
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Qy    597 TGGGGATCTAATGAAACAACATTTGAAGAGAGGGATAAATGTCCACAGTGGAAAACATGG 656
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Db    908 TGGGGATCTAATGAAACAACATTTGAAGAGAGGGATAAATGTCCACAGTGGAAAACATGG 967

Qy    657 GCAGAATTAATCATAGGTCAAGCAGAGGGTCCTGGTTCTTATATCATGAACTACATAATG 716
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Db    968 GCAGAATTAATCATAGGTCAAGCAGAGGGTCCTGGTTCTTATATCATGAACTACATAATG 1027

Qy    717 TACATCTTCTGGGCCTTGAGTTTTGCCTTTCTTGCAGTTTCCCTGGTAAAGGTATTTGCT 776
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Db   1028 TACATCTTCTGGGCCTTGAGTTTTGCCTTTCTTGCAGTTTCCCTGGTAAAGGTATTTGCT 1087

Qy    777 CCATATGCCTGTGGCTCTGGAATTCCAGAGATTAAAACTATTTTAAGTGGATTCATCATC 836
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Qy    957 AATATCTTTTCCTACCTCTTTCCAAAGTATAGCACAAACGAAGCTAAAAAAAGGGAGGTG 1016
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Qy   1017 CTATCAGCTGCCTCAGCTGCAGGGGTTTCTGTAGCTTTTGGTGCACCAATTGGAGGAGTT 1076
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Qy   1077 CTTTTTAGCCTGGAAGAGGTTAGCTATTATTTTCCTCTCAAAACTTTATGGAGATCATTT 1136
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Qy   1197 CTGGTCCTTTTTTATGTGGAGTATCATACACCATGGTACCTTTTTGAACTGTTTCCTTTT 1256
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Qy   1257 ATTCTTCTAGGGGTATTTGGAGGGCTTTGGGGAGCCTTTTTCATTAGGGCAAATATTGCC 1316
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Qy   1317 TGGTGTCGTCGACGCAAGTCCACGAAATTTGGAAAGTATCCCGTTCTGGAAGTCATTATT 1376
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Db   1628 TGGTGTCGTCGACGCAAGTCCACGAAATTTGGAAAGTATCCCGTTCTGGAAGTCATTATT 1687

Qy   1377 GTTGCAGCCATTACTGCTGTGATAGCCTTCCCTAATCCATACACTAGGCTAAACACCAGT 1436
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Qy   1617 ACAGTATTCACTTTTGGCATCAAGGTTCCATCAGGCTTGTTCATCCCCAGCATGGCCATT 1676
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Qy   1797 TATGCCATGGTTGGTGCTGCTGCATGCTTAGGTGGTGTGACAAGAATGACTGTCTCCCTG 1856
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Qy   1857 GTGGTTATTGTTTTTGAGCTTACTGGAGGCTTGGAATATATTGTTCCCCTTATGGCTGCA 1916
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Qy   1917 GTCATGACCAGTAAATGGGTTGGAGATGCCTTTGGCAGGGAAGGCATTTATGAAGCACAC 1976
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Db   2228 GTCATGACCAGTAAATGGGTTGGAGATGCCTTTGGCAGGGAAGGCATTTATGAAGCACAC 2287

Qy   1977 ATCCGATTAAATGGATACCCTTTCTTGGATGCAAAAGAAGAATTCACTCATACCACCCTG 2036
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Qy    2037 GCTGCTGACGTTATGAGACCTCGAAGGAATGATCCTCCCTTAGCTGTCCTGACACAGGAC 2096
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Qy    2097 AATATGACAGTGGATGATATAGAAAACATGATTAATGAAACCAGCTACAATGGATTTCCT 2156
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Qy    2157 GTCATAATGTCAAAAGAATCTCAGAGATTAGTGGGATTTGCCCTCAGAAGAGACCTGACA 2216
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Qy    2217 ATTGCAATAGAAAGTGCCAGGAAAAAACAAGAAGGTATCGTTGGCAGTTCTCGGGTGTGT 2276
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Qy    2337 ATTCTTGACATGAGCCCTTTTACAGTGACAGACCACACCCCAATGGAGATTGTGGTGGAT 2396
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Qy    2397 ATTTTCCGAAAGCTGGGACTGAGGCAGTGCCTTGTAACTCACAATG-------------- 2442
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Qy    2443 ------------------------------------------------------------ 2442

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Qy    2443 --GGCGCCTCCTTGGCATTATAACAAAAAAAGATATCCTCCGGCATATGGCCCAGACGGC 2500
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Qy    2501 AAACCAAGACCCCGCTTCAATAATGTTCAACTGAATCTCACAGATGAGGAGAGAGAAGAA 2560
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Db    2888 AAACCAAGACCCCGCTTCAATAATGTTCAACTGAATCTCACAGATGAGGAGAGAGAAGAA 2947

Qy    2561 ACGGAAGAGGAAGTTTATTTGTTGAATAGCACAACTCTTTAACCTGAGGGAGTCATCTAC 2620
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Qy    2621 TTTTTTTTCCTCCTTTACAAAAAAAGAAAGGAAATATAAAAGCCGGGTTTTTGCAACATG 2680
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Qy    2681 GTTTGCAAATAATGCTGGTGGAATGGAGGAGTTGTTTGGGGAGGGAAAGGAGAGAGAAGG 2740
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Qy    2741 AAAGGAGTGAGGTATTTCCCGTCTAACAGAAAGCAGCGTATCAACTCCTATTGTTCTGCA 2800
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Qy    2801 CTGGATGCATTCAGCTGAGGATGTGCCTGATAGTGCAGGCTTGCGCCTCAACAGAGATGA 2860
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Qy    2861 CAGCAGAGTCCTCGAG 2876
           ||||||||||||||||
Db    3248 CAGCAGAGTCCTCGAG 3263
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RESULT 2
AAK52392
ID AAK52392 standard; cDNA; 3173 BP.
XX
AC AAK52392;
XX
DT 06-NOV-2001 (first entry)
XX
DE Human polynucleotide SEQ ID NO 937.
XX
KW Human; cytokine; cell proliferation; cell differentiation; gene therapy;
KW vaccine; peptide therapy; stem cell growth factor; haematopoiesis;
KW tissue growth factor; immunomodulatory; cancer; leukaemia;
KW nervous system disorder; arthritis; inflammation; ss.
XX
OS Homo sapiens.
XX
PN WO200157190-A2.
XX
PD 09-AUG-2001.
XX
PF 05-FEB-2001; 2001WO-US04098.
XX
PR 03-FEB-2000; 2000US-0496914.
PR 27-APR-2000; 2000US-0560875.
PR 20-JUN-2000; 2000US-0598075.
PR 19-JUL-2000; 2000US-0620325.
PR 01-SEP-2000; 2000US-0654936.
PR 15-SEP-2000; 2000US-0663561.
PR 20-OCT-2000; 2000US-0693325.
PR 30-NOV-2000; 2000US-0728422.
XX
PA (HYSE-) HYSEQ INC.
XX
PI Tang YT, Liu C, Drmanac RT, Asundi V, Zhou P, Xu C, Cao Y, Ma Y;
PI Zhao QA, Wang D, Wang J, Zhang J, Ren F, Chen R, Wang ZW;
PI Xue AJ, Yang Y, Wejhrman T, Goodrich R;
XX
DR WPI; 2001-476283/51.
DR P-PSDB; AAM79259.
XX
PT Nucleic acids encoding polypeptides with cytokine-like activities,
PT useful in diagnosis and gene therapy -
XX
PS Claim 1; Page 3074-3078; 6221pp; English.
XX
CC The invention relates to polynucleotides (AAK51456-AAK53435) and the
CC encoded polypeptides (AAM78323-AAM80302) that exhibit activity elating to
CC cytokine, cell proliferation or cell differentiation or which may induce
CC production of other cytokines in other cell populations. The
CC polynucleotides and polypeptides are useful in gene therapy, vaccines or
CC peptide therapy. The polypeptides have various cytokine-like activities,
CC e.g. stem cell growth factor activity, haematopoiesis regulating
CC activity, tissue growth factor activity, immunomodulatory activity and
CC activin/inhibin activity and may be useful in the diagnosis and/or
CC treatment of cancer, leukaemia, nervous system disorders, arthritis and
CC inflammation.
CC Note: Records for SEQ ID NO 2110 (AAK52581), 2111 (AAK52582) and 3666
CC (AAM80020) are omitted as the relevant pages from the sequence listing
CC were missing at the time of publication.
XX
SQ Sequence 3173 BP; 811 A; 682 C; 732 G; 948 T; 0 other;

Query Match 32.8%; Score 1188.6; DB 22; Length 3173;
Best Local Similarity 70.5%; Pred. No. 2.6e-173;
Matches 1603; Conservative 0; Mismatches 669; Indels 3; Gaps 1;

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Qy     258 AATGGAGGCAGCATTAACAGTTCTACACATTTACTGGATCTTTTGGATGAACCAATTCCA 317
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Db     259 AATGGTGGAGGAATAGGTTCTTCAAATAGGATCATGGACTTCTTGGAGGAGCCAATCCCT 318

Qy     318 GGTGTTGGTACATATGATGATTTCCATACTATTGATTGGGTGCGAGAAAAATGTAAAGAC 377
           |||||  ||  ||  ||||||||||||  ||||  ||||||||||||  ||||  ||  | |  ||||
Db     319 GGTGTAGGGACCTATGATGATTTCAATACAATTGATTGGGTGAGAGAGAAGTCTCGAGAC 378

Qy     378 AGAGAAAGGCATAGACGGATCAACAGCAAAAAGAAAGAATCAGCATGGGAAATGACAAAA 437
            | ||  |||||  ||  |||  | ||  ||||  |||||  |||  ||||||    | |    |
Db     379 CGGGATAGGCACCGAGAGATTACCAATAAAAGCAAAGAGTCAACATGGGCCTTAATTCAC 438

Qy     438 AGTTTGTATGATGCGTGGTCAGGATGGCTAGTAGTAACACTAACAGGATTGGCATCAGGG 497
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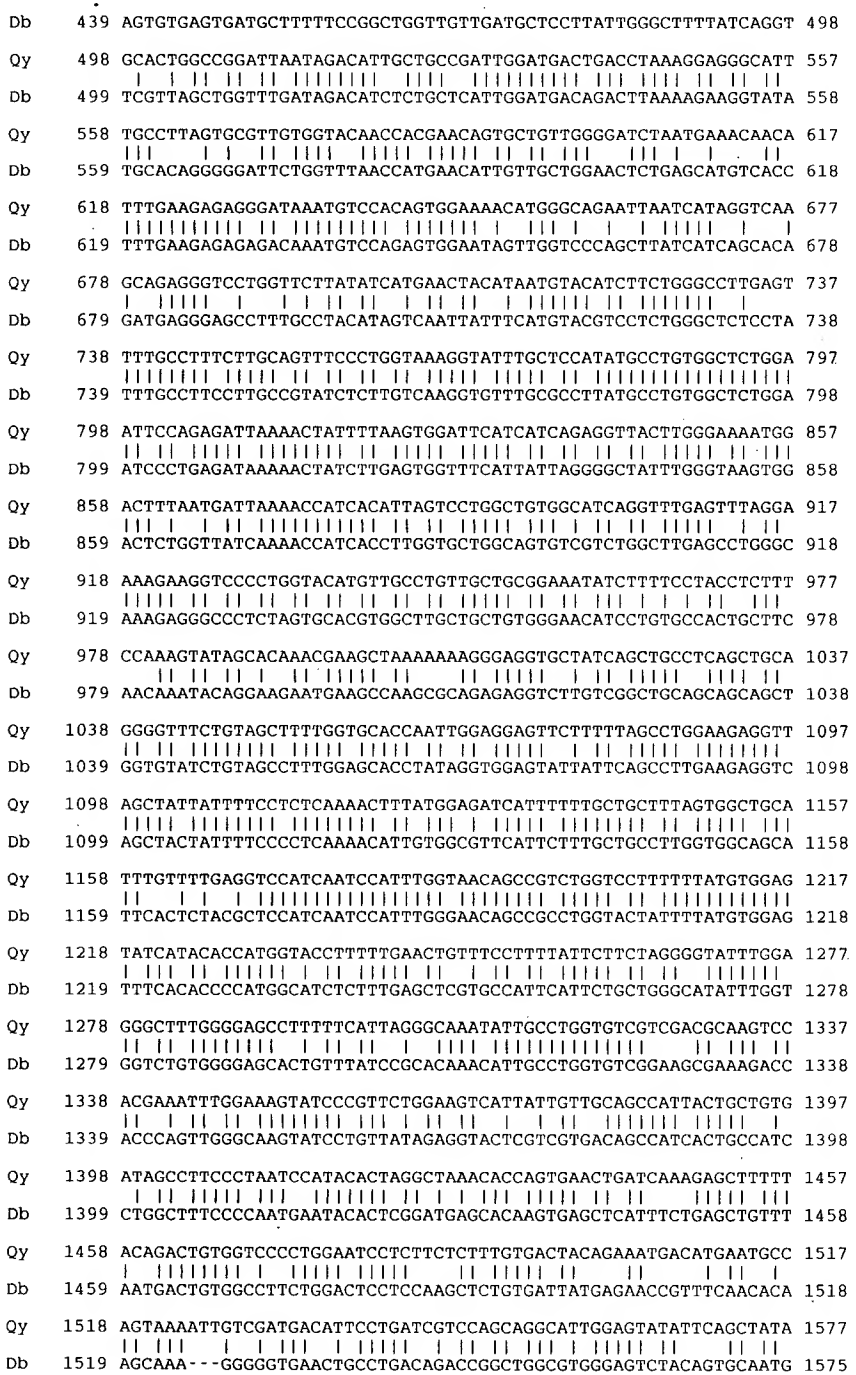

RESULT 3
AAC95411
ID AAC95411 standard; cDNA; 3126 BP.
XX
AC AAC95411;
XX
DT 19-FEB-2001 (first entry)

XX
DE Cat flea HMT VG Cl channel-like cDNA, SEQ ID NO:1914.
XX
KW Cat flea; hindgut and Malpighian tubule nucleic acid; HMT;
KW flea infestation; vaccine; antiparasitic; therapeutic target;
KW diagnosis; detection; ss.
XX
OS Ctenocephalides felis.
XX
PN WO200061621-A2.
XX
PD 19-OCT-2000.
XX
PF 07-APR-2000; 2000WO-US09437.
XX
PR 09-APR-1999; 99US-0128704.
XX
PA (HESK-) HESKA CORP.
XX
PI Brandt KS, Gaines PJ, Stinchcomb DT, Wisnewski N;
XX
DR WPI; 2000-656323/63.
DR P-PSDB; AAB29627.
XX
PT Flea Malpighian tubule and head and nerve cord tissue derived nucleic
PT acids useful for the prevention, diagnosis and treatment of flea
PT infestations -
XX
PS Claim 1; Page 933-937; 964pp; English.
XX
CC The invention relates to novel cat flea (Ctenocephalides felis) nucleic
CC acids which are expressed in hindgut and Malpighian tubule (HMT) tissue
CC or head and nerve cord (HNC) tissue. The invention also relates to the
CC encoded proteins. The invention additionally encompasses expression
CC constructs, recombinant viruses and recombinant cells comprising the
CC nucleic acids of the invention, recombinant production of the proteins,
CC antibodies against the proteins, a method of identifying inhibitors of
CC the proteins, and compositions comprising the inhibitors for
CC administration to an animal. The nucleic acids, and the proteins they
CC encode may be used in the prevention, treatment and diagnosis of diseases
CC associated with flea infestations. For example, the nucleic acids may be
CC used to produce an HMT or HNC protein according to standard recombinant
CC DNA methodology by inserting the nucleic acids into a host cell and
CC culturing the cell to express the protein. The HMT and HNC nucleic acids
CC may also be used as DNA probes in diagnostic assays (e.g., PCR) to detect
CC and quantitate the presence of cat flea or other homologous nucleic acid
CC sequences in samples. They may also be used to study the expression and
CC function of the proteins and their role in metabolism. The HMT and HNC
CC proteins may be used as antigens in the production of specific
CC antibodies, and in assays to identify modulators (agonists and
CC antagonists) of HMT and/or HNC protein expression and activity. The
CC anti-HMT/HNC protein antibodies and antagonists may also be used to
CC downregulate protein expression and activity. The antibodies may also be
CC used as diagnostic agents for detecting the presence of flea polypeptides
CC in samples (e.g., by enzyme linked immunosorbent assay (ELISA)). The
CC present sequence represents a cat flea HMT cDNA of the invention.
XX
SQ Sequence 3126 BP; 939 A; 494 C; 676 G; 1016 T; 1 other;

Query Match 24.2%; Score 877.8; DB 21; Length 3126;
Best Local Similarity 63.3%; Pred. No. 9.3e-126;
Matches 1417; Conservative 0; Mismatches 807; Indels 15; Gaps 4;

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Qy    312 ATTCCAGGTGTTGGTACATATGATGATTTCCATACTATTGATTGGGTGCGAGAAAAATGT 371
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Db    516 ATTCCTGGGATTGGGCAATATGATGATTTCCATACGATAGATTGGCAACGTGATATAGCC 575

Qy    372 AAAGACAGAGAAAGGCATAGACGGATCAACAGCAAAAAGAAAGAATCAGCATGGGAAATG 431
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Db    576 AGAGATCGAATGAGACATCGATATATTGTTAAAAAACGACAAGACTCTATACTAGACCTG 635

Qy    432 ACAAAAAGTTTGTATGATGCGTGGTCAGGATGGCTAGTAGTAACACTAACAGGATTGGCA 491
          | |||  ||    ||||||| |||||||| ||| |    ||    |||   ||  |||
Db    636 ATAAAGGGTGCCCATGATGCCTGGTCAGGTTGGGTGTGTGTTCTCCTAGTCGGGCTGGTG 695

Qy    492 TCAGGGGCACTGGCCGGATTAATAGACATTGCTGCCGATTGGATGACTGACCTAAAGGAG 551
          |||| ||  | || ||  | ||||| || |  ||   ||||||||| ||  ||||| |
Db    696 ACAGGAGCTATTGCAGGCGTCATAGATATCGGAGCAAGTTGGATGACGGATTTAAAGAAC 755

Qy    552 GGCATTTGCCTTAGTGCGTTGTGGTACAACCACGAACAGTGCTGTTGGGGATCTAATGAA 611
          ||  ||||||     || || |||| ||    ||||| || |||||  ||  ||||||
Db    756 GGTGTTTGCCCACAAGCATTCTGGTTGAATAGAGAACAATGTTGTTGGTCATTGAATGAA 815

Qy    612 ACAACATTTGAAGAGAGGGATAAATGTCCACAGTGGAAAACATGGGCAGAATTAATCATA 671
          ||||| ||||| ||    |  || ||  |||| |||   || ||| | ||  |  ||  |
Db    816 ACAACCTTTGATGA---TGGAAATTGCTCACAATGGCTGACTTGGCCTGAGGTTTTCGGA 872

Qy    672 GGTCAAGCAGAGGGTCCTGGTTCTTATATCATGAACTACATAATGTACATCTTCTGGGCC 731
            |   |  ||  | ||  |||| || ||    ||  |  | || ||  | |||||
Db    873 CAACCTAGAACTGGGGCGGGGGCTTACATAATTGCTTATTTGTTTTATATTATTTGGGCA 932

Qy    732 TTGAGTTTTGCCTTTCTTGCAGTTTCCCTGGTAAAGGTATTTGCTCCATATGCCTGTGGC 791
          |||| |||||| |. | | |||| || ||||     | ||||| || ||||| ||||
Db    933 TTGATTTTTGCTTCTTTGGCAGCCTCTTTGGTGCGCATGTTTGCACCTTATGCTTGTGGG 992

Qy    792 TCTGGAATTCCAGAGATTAAAACTATTTTAAGTGGATTCATCATCAGAGGTTACTTGGGA 851
          || || || |||||||||||||| ||| | ||||| |||||||||||||| ||  | |||
Db    993 TCAGGTATACCAGAGATTAAAACCATTCTGAGTGGTTTCATCATCAGAGGATATCTTGGA 1052

Qy    852 AAATGGACTTTAATGATTAAAACCATCACATTAGTCCTGGCTGTGGCATCAGGTTTGAGT 911
          |||||||| || || |||||||   |  | |  |  || ||||  || | || ||||||
Db   1053 AAATGGACATTGATTATTAAAAGTGTAGGAATCATGTTGTCTGTATCAGCTGGATTGAGT 1112

Qy    912 TTAGGAAAAGAAGGTCCCCTGGTACATGTTGCCTGTTGCTGCGGAAATATCTTTTCCTAC 971
          || || |||||||||||  |||||||  ||||| | ||    || |||||  || || ||
Db   1113 TTGGGTAAAGAAGGTCCTATGGTACACATTGCCAGCTGTATAGGTAATATATTGTCTTAT 1172

Qy    972 CTCTTTCCAAAGTATAGCACAAACGAAGCTAAAAAAAGGGAGGTGCTATCAGCTGCCTCA 1031
          | ||||| || ||| |    || ||||| || ||| | ||| |  |||||||  ||  ||
Db   1173 TTATTTCCTAAATATGGTCGGAATGAAGCAAAGAAACGAGAGATTTTATCAGCAGCTGCA 1232

Qy   1032 GCTGCAGGGGTTTCTGTAGCTTTTGGTGCACCAATTGGAGGAGTTCTTTTTAGCCTGGAA 1091
          || || || || ||||| || ||||| ||||| |||||||| || ||||| ||  ||||
Db   1233 GCAGCTGGTGTATCTGTTGCATTTGGAGCACCTATTGGAGGTGTGCTTTTCAGTTTGGAA 1292

Qy   1092 GAGGTTAGCTATTATTTTCCTCTCAAAACTTTATGGAGATCATTTTTTGCTGCTTTAGTG 1151
          ||||| ||||| ||||| ||  | || || |||||||||||||| ||   ||||||  |
Db   1293 GAGGTGAGCTACTATTTCCCATTGAAGACCTTATGGAGATCATTCTTCTGTGCTTTGATA 1352

Qy   1152 GCTGCATTTGTTTTGAGGTCCATCAATCCATTTGGTAACAGCCGTCTGGTCCTTTTTTAT 1211
          || || ||  | ||| | ||||| |||||||||| ||    |     |||||||| |||
Db   1353 GCAGCTTTCATATTGCGATCCATAAATCCATTTGGAAATGAGCACTCTGTCCTTTTCTAT 1412

Qy   1212 GTGGAGTATCATACACCATGGTACCTTTTTGAACTGTTTCCTTTTATTCTTCTAGGGGTA 1271
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Db   1413 GTGGAATACAATAAACCTTGGATATTTTTTGAACTGATACCTTTCATAGGCCTTGGAATA 1472

Qy   1272 TTTGGAGGGCTTTGGGGAGCCTTTTTCATTAGGGCAAATATTGCCTGGTGTCGTCGACGC 1331
          |||| ||  ||   | | |  | || || |  || ||| |   |||||||||    ||
Db   1473 ATTGGTGGTGTTGTAGCAACGCTGTTTATAAAAGCTAATTTGTACTGGTGTCGCTACCGT 1532

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          || |   | ||| | ||| |||| ||||||   |||||  |  |||||||  |     ||
Db   1533 AAATTTTCTAAACTAGGACAGTACCCCGTTGCAGAAGTTTTAGTTGTTGCTGTTGCAACA 1592

Qy   1392 GCTGTGATAGCCTTCCCTAATCCATACACTAGGCTAAACACCAGTGAACTGATCAAAGAG 1451
          || ||||| || |  |||||||| ||||| ||| | || || ||| |||||||  |
Db   1593 GCAGTGATTGCTTATCCTAATCCTTACACCAGGATGAATACTAGTCAACTGATTTATTTA 1652

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Db   1653 CTATTCAGCCAATGCGGGATTTCCAATTCTGATCCTTTGTGTGATTACAATCGCAATTTC 1712

Qy   1512 AATGCCAGTAAAATTGTCGATGACATTCCTGATCGTCCAGCAGGCATTGGAGTATATTCA 1571
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Qy   1572 GCTATATGGCAGTTATGCCTGGCACTCATATTTAAAATCATAATGACAGTATTCACTTTT 1631
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Qy   1632 GGCATCAAGGTTCCATCAGGCTTGTTCATCCCCAGCATGGCCATTGGAGCGATCGCAGGA 1691
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Qy   1692 AGGATTGTGGGGATTGCGGTGGAGCAGCTTGCCTACTATCACCACGACTGGTTTATCTTT 1751
Db   1887 AGAATTGTGGGCATTGGAATTGAACAATTGGCTTACTATTATCCAAAATTATGGTTCTTT 1946

Qy   1752 AAGGAGTGGTGTGAGGTCGGGGCTGATTGCATTACACCTGGCCTTTATGCCATGGTTGGT 1811
Db   1947 TCTGGTGAATGCTCAACTGGAGACAATTGCATCACACCGGGCCTGTATGCTATGGTGGGC 2006

Qy   1812 GCTGCTGCATGCTTAGGTGGTGTGACAAGAATGACTGTCTCCCTGGTGGTTATTGTTTTT 1871
Db   2007 GCTGCAGCTGTTTTAGGTGGTGTCACTAGAATGACAGTTTCTCTGGTGGTAATAATGTTT 2066

Qy   1872 GAGCTTACTGGAGGCTTGGAATATATTGTTCCCCTTATGGCTGCAGTCATGACCAGTAAA 1931
Db   2067 GAACTGACTGGTGGTGTACGTTATATCGTGCCCTTAATGGCAGCAGCTATGGCTTCCAAA 2126

Qy   1932 TGGGTTGGAGATGCCTTTGGCAGGGAAGGCATTTATGAAGCACACATCCGATTAAATGGA 1991
Db   2127 TGGGTTGGTGATGCTTTGGGCAGACAGGGTATATATGATGCCCATATACAGCTTAATGGA 2186

Qy   1992 TACCCTTTCTTGGATGCAAAAGAAGAATTCACTCATACCACCCTGGCTGCTGACGTTATG 2051
Db   2187 TATCCATTCTTGGACAGTAAAGATGAATTTGCACATACATCTTTAGCTGCAGATGTCATG 2246

Qy   2052 AGACCTCGAAGGAATGATCCTCCCTTAGCTGTCCTGACACAGGACAATATGACAGTGGAT 2111
Db   2247 CAACCCAAGAGGAATGAAACA---TTAAGTGTAATCACTCAAGACTCGATGACTGTGGAT 2303

Qy   2112 GATATAGAAAACATGATTAATGAAACCAGCTACAATGGATTTCCTGTCATAATGTCAAAA 2171
Db   2304 GATGTTGAAGGTTTACTGAAAGAAACTGAGCACAATGGATATCCAGTTGTTGTTTCCAGA 2363

Qy   2172 GAATCTCAGAGATTAGTGGGATTTGCCCTCAGAAGAGACCTGACAATTGCAATAGAAAGT 2231
Db   2364 GAATCTCAGTATCTTGTTGGATTTGTTTTGAGGAGGGACTTAAATCTAGCCATAGCCAAT 2423

Qy   2232 GCCAGGAAAAAACAAGAAGGTATCGTTGGCAGTTCTCGGGTGTGTTTTGCACAGCACACC 2291
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Qy   2292 CCATCTCTTCCAGCAGAAAGTCCTCGGCCATTGAAGCTTCGAAGCATTCTTGACATGAGC 2351
Db   2481 CCTACAGTGCAAAGTTTAGGACCTCCACCTTTGAAACTAAAGAAAATATTAGATATGGCT 2540

Qy   2352 CCTTTTACAGTGACAGACCACACCCCAATGGAGATTGTGGTGGATATTTTCCGAAAGCTG 2411
Db   2541 CCAATAACAGTGACTGATCAAACACCAATGGAAACTGTGGTGGATATGTTTAGAAAACTA 2600

Qy   2412 GGACTGAGGCAGTGCCTTGTAACTCACAATGGGCGCCTCCTTGGCATTATAACAAAAAAA 2471
Db   2601 GGTTTACGTCAGACATTAGTCACACACAATGGGCGTTTGCTCGGTGTTATAACTAAAAAA 2660

Qy   2472 GATATCCTCCGGCATATGGCCCAGACGGCAAACCAAGACCCCGCTTCAATAATGTTCAAC 2531
Db   2661 GATGTTTTACGACATGTAAAACAAATGGATAATGAAGATCCTAATAGTATACTTTTTAAT 2720

Qy   2532 TGAATCTCACAGATGAGGA 2550
Db   2721 TAATATTTACATATATGTA 2739
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RESULT 4
AAC95412
ID AAC95412 standard; cDNA; 3126 BP.

XX
AC AAC95412;
XX
DT 19-FEB-2001 (first entry)
XX
DE Cat flea HMT VG Cl channel-like cDNA complement, SEQ ID NO:1916.
XX
KW Cat flea; hindgut and Malpighian tubule nucleic acid; HMT;
KW flea infestation; vaccine; antiparasitic; therapeutic target;
KW diagnosis; detection; ss.
XX
OS Ctenocephalides felis.
XX
PN WO200061621-A2.
XX
PD 19-OCT-2000.
XX
PF 07-APR-2000; 2000WO-US09437.
XX
PR 09-APR-1999; 99US-0128704.
XX
PA (HESK-) HESKA CORP.
XX
PI Brandt KS, Gaines PJ, Stinchcomb DT, Wisnewski N;
XX
DR WPI; 2000-656323/63.
DR P-PSDB; AAB29627.
XX
PT Flea Malpighian tubule and head and nerve cord tissue derived nucleic
PT acids useful for the prevention, diagnosis and treatment of flea
PT infestations -
XX
PS Claim 1; Page 941-942; 964pp; English.
XX
CC The invention relates to novel cat flea (Ctenocephalides felis) nucleic
CC acids which are expressed in hindgut and Malpighian tubule (HMT) tissue
CC or head and nerve cord (HNC) tissue. The invention also relates to the
CC encoded proteins. The invention additionally encompasses expression
CC constructs, recombinant viruses and recombinant cells comprising the
CC nucleic acids of the invention, recombinant production of the proteins,
CC antibodies against the proteins, a method of identifying inhibitors of
CC the proteins, and compositions comprising the inhibitors for
CC administration to an animal. The nucleic acids, and the proteins they
CC encode may be used in the prevention, treatment and diagnosis of diseases
CC associated with flea infestations. For example, the nucleic acids may be
CC used to produce an HMT or HNC protein according to standard recombinant
CC DNA methodology by inserting the nucleic acids into a host cell and
CC culturing the cell to express the protein. The HMT and HNC nucleic acids
CC may also be used as DNA probes in diagnostic assays (e.g., PCR) to detect
CC and quantitate the presence of cat flea or other homologous nucleic acid
CC sequences in samples. They may also be used to study the expression and
CC function of the proteins and their role in metabolism. The HMT and HNC
CC proteins may be used as antigens in the production of specific
CC antibodies, and in assays to identify modulators (agonists and
CC antagonists) of HMT and/or HNC protein expression and activity. The
CC anti-HMT/HNC protein antibodies and antagonists may also be used to
CC downregulate protein expression and activity. The antibodies may also be
CC used as diagnostic agents for detecting the presence of flea polypeptides
CC in samples (e.g., by enzyme linked immunosorbent assay (ELISA)). The
CC present sequence represents a cat flea HMT cDNA of the invention.
XX
SQ Sequence 3126 BP; 939 A; 494 C; 676 G; 1016 T; 1 other;

Query Match 24.2%; Score 877.8; DB 21; Length 3126;
Best Local Similarity 63.3%; Pred. No. 9.3e-126;
Matches 1417; Conservative 0; Mismatches 807; Indels 15; Gaps 4;

```
Qy    312 ATTCCAGGTGTTGGTACATATGATGATTTCCATACTATTGATTGGGTGCGAGAAAAATGT 371
Db    516 ATTCCTGGGATTGGGCAATATGATGATTTCCATACGATAGATTGGCAACGTGATATAGCC 575

Qy    372 AAAGACAGAGAAAGGCATAGACGGATCAACAGCAAAAAGAAAGAATCAGCATGGGAAATG 431
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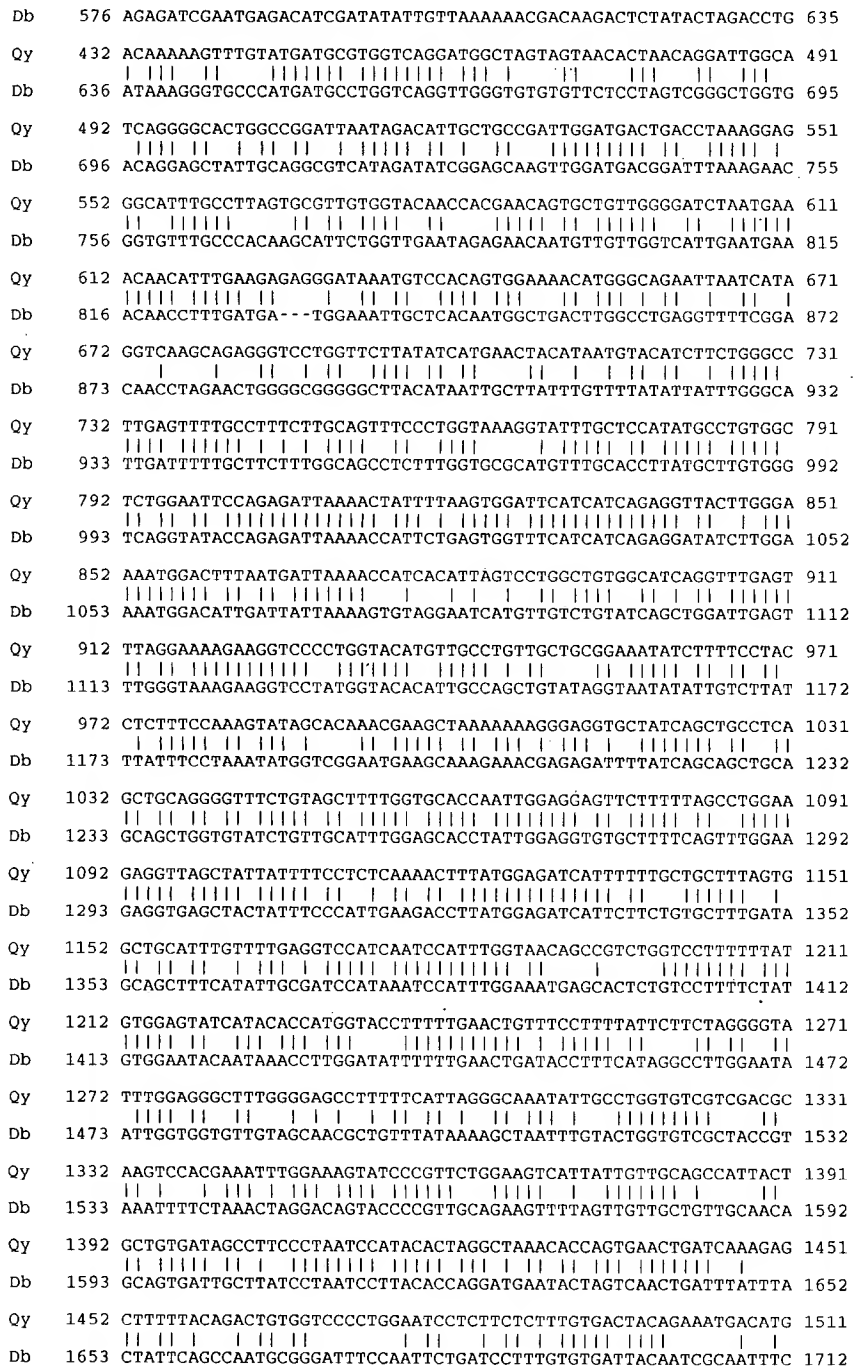
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Qy 432 ACAAAAAGTTTGTATGATGCGTGGTCAGGATGGCTAGTAGTAACACTAACAGGATTGGCA 491
Db 636 ATAAAGGGTGCCCATGATGCCTGGTCAGGTTGGGTGTGTGTTCTCCTAGTCGGGCTGGTG 695
Qy 492 TCAGGGGCACTGGCCGGATTAATAGACATTGCTGCCGATTGGATGACTGACCTAAAGGAG 551
Db 696 ACAGGAGCTATTGCAGGCGTCATAGATATCGGAGCAAGTTGGATGACGGATTTAAAGAAC 755
Qy 552 GGCATTTGCCTTAGTGCGTTGTGGTACAACCACGAACAGTGCTGTTGGGGATCTAATGAA 611
Db 756 GGTGTTTGCCCACAAGCATTCTGGTTGAATAGAGAACAATGTTGTTGGTCATTGAATGAA 815
Qy 612 ACAACATTTGAAGAGAGGGATAAATGTCCACAGTGGAAAACATGGGCAGAATTAATCATA 671
Db 816 ACAACCTTTGATGA---TGGAAATTGCTCACAATGGCTGACTTGGCCTGAGGTTTTCGGA 872
Qy 672 GGTCAAGCAGAGGGTCCTGGTTCTTATATCATGAACTACATAATGTACATCTTCTGGGCC 731
Db 873 CAACCTAGAACTGGGGCGGGGGCTTACATAATTGCTTATTTGTTTTATATTATTTGGGCA 932
Qy 732 TTGAGTTTTGCCTTTCTTGCAGTTTCCCTGGTAAAGGTATTTGCTCCATATGCCTGTGGC 791
Db 933 TTGATTTTTGCTTCTTTGGCAGCCTCTTTGGTGCGCATGTTTGCACCTTATGCTTGTGGG 992
Qy 792 TCTGGAATTCCAGAGATTAAAACTATTTTAAGTGGATTCATCATCAGAGGTTACTTGGGA 851
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Qy 852 AAATGGACTTTAATGATTAAAACCATCACATTAGTCCTGGCTGTGGCATCAGGTTTGAGT 911
Db 1053 AAATGGACATTGATTATTAAAAGTGTAGGAATCATGTTGTCTGTATCAGCTGGATTGAGT 1112
Qy 912 TTAGGAAAAGAAGGTCCCCTGGTACATGTTGCCTGTTGCTGCGGAAATATCTTTTCCTAC 971
Db 1113 TTGGGTAAAGAAGGTCCTATGGTACACATTGCCAGCTGTATAGGTAATATATTGTCTTAT 1172
Qy 972 CTCTTTCCAAAGTATAGCACAAACGAAGCTAAAAAAAGGGAGGTGCTATCAGCTGCCTCA 1031
Db 1173 TTATTTCCTAAATATGGTCGGAATGAAGCAAAGAAACGAGAGATTTTATCAGCAGCTGCA 1232
Qy 1032 GCTGCAGGGGTTTCTGTAGCTTTTGGTGCACCAATTGGAGGAGTTCTTTTTAGCCTGGAA 1091
Db 1233 GCAGCTGGTGTATCTGTTGCATTTGGAGCACCTATTGGAGGTGTGCTTTTCAGTTTGGAA 1292
Qy 1092 GAGGTTAGCTATTATTTTCCTCTCAAAACTTTATGGAGATCATTTTTTGCTGCTTTAGTG 1151
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Qy 1152 GCTGCATTTGTTTTGAGGTCCATCAATCCATTTGGTAACAGCCGTCTGGTCCTTTTTTAT 1211
Db 1353 GCAGCTTTCATATTGCGATCCATAAATCCATTTGGAAATGAGCACTCTGTCCTTTTCTAT 1412
Qy 1212 GTGGAGTATCATACACCATGGTACCTTTTTGAACTGTTTCCTTTTATTCTTCTAGGGGTA 1271
Db 1413 GTGGAATACAATAAACCTTGGATATTTTTTGAACTGATACCTTTCATAGGCCTTGGAATA 1472
Qy 1272 TTTGGAGGGCTTTGGGGAGCCTTTTTCATTAGGGCAAATATTGCCTGGTGTCGTCGACGC 1331
Db 1473 ATTGGTGGTGTTGTAGCAACGCTGTTTATAAAAGCTAATTTGTACTGGTGTCGCTACCGT 1532
Qy 1332 AAGTCCACGAAATTTGGAAAGTATCCCGTTCTGGAAGTCATTATTGTTGCAGCCATTACT 1391
Db 1533 AAATTTTCTAAACTAGGACAGTACCCCGTTGCAGAAGTTTTAGTTGTTGCTGTTGCAACA 1592
Qy 1392 GCTGTGATAGCCTTCCCTAATCCATACACTAGGCTAAACACCAGTGAACTGATCAAAGAG 1451
Db 1593 GCAGTGATTGCTTATCCTAATCCTTACACCAGGATGAATACTAGTCAACTGATTTATTTA 1652
Qy 1452 CTTTTTACAGACTGTGGTCCCCTGGAATCCTCTTCTCTTTGTGACTACAGAAATGACATG 1511
Db 1653 CTATTCAGCCAATGCGGGATTTCCAATTCTGATCCTTTGTGTGATTACAATCGCAATTTC 1712
Qy 1512 AATGCCAGTAAAATTGTCGATGACATTCCTGATCGTCCAGCAGGCATTGGAGTATATTCA 1571
Db 1713 ACTGATGTTAAATCAGCTATAGAAATAGCAG------CAGCTGGTCCTGGTGTCTACCAG 1766
Qy 1572 GCTATATGGCAGTTATGCCTGGCACTCATATTTAAAATCATAATGACAGTATTCACTTTT 1631
Db 1767 GCTGTGTGGTTGCTCCTGATTGCTTTGGTACTGAAATTGGGAATGACTGTATTTACCTTT 1826
Qy 1632 GGCATCAAGGTTCCATCAGGCTTGTTCATCCCCAGCATGGCCATTGGAGCGATCGCAGGA 1691
Db 1827 GGTATGAAAGTACCATGTGGTCTGTTTATCCCAAGTTTATGCCTAGGAGCTATTATGGGT 1886
Qy 1692 AGGATTGTGGGGATTGCGGTGGAGCAGCTTGCCTACTATCACCACGACTGGTTTATCTTT 1751
Db 1887 AGAATTGTGGGCATTGGAATTGAACAATTGGCTTACTATTATCCAAAATTATGGTTCTTT 1946
Qy 1752 AAGGAGTGGTGTGAGGTCGGGGCTGATTGCATTACACCTGGCCTTTATGCCATGGTTGGT 1811
Db 1947 TCTGGTGAATGCTCAACTGGAGACAATTGCATCACACCGGGCCTGTATGCTATGGTGGGC 2006
Qy 1812 GCTGCTGCATGCTTAGGTGGTGTGACAAGAATGACTGTCTCCCTGGTGGTTATTGTTTTT 1871
Db 2007 GCTGCAGCTGTTTTAGGTGGTGTCACTAGAATGACAGTTTCTCTGGTGGTAATAATGTTT 2066
Qy 1872 GAGCTTACTGGAGGCTTGGAATATATTGTTCCCCTTATGGCTGCAGTCATGACCAGTAAA 1931
Db 2067 GAACTGACTGGTGGTGTACGTTATATCGTGCCCTTAATGGCAGCAGCTATGGCTTCCAAA 2126
Qy 1932 TGGGTTGGAGATGCCTTTGGCAGGGAAGGCATTTATGAAGCACACATCCGATTAAATGGA 1991
Db 2127 TGGGTTGGTGATGCTTTGGGCAGACAGGGTATATATGATGCCCATATACAGCTTAATGGA 2186
Qy 1992 TACCCTTTCTTGGATGCAAAAGAAGAATTCACTCATACCACCCTGGCTGCTGACGTTATG 2051
Db 2187 TATCCATTCTTGGACAGTAAAGATGAATTTGCACATACATCTTTAGCTGCAGATGTCATG 2246
Qy 2052 AGACCTCGAAGGAATGATCCTCCCTTAGCTGTCCTGACACAGGACAATATGACAGTCGAT 2111
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Db 2304 GATGTTGAAGGTTTACTGAAAGAAACTGAGCACAATGGATATCCAGTTGTTGTTTCCAGA 2363
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Db 2364 GAATCTCAGTATCTTGTTGGATTTGTTTTGAGGAGGGACTTAAATCTAGCCATAGCCAAT 2423
Qy 2232 GCCAGGAAAAAACAAGAAGGTATCGTTGGCAGTTCTCGGGTGTGTTTTGCACAGCACACC 2291
Db 2424 GCTAGACGCATGATCGATGGGATAACAGGACAAAGTTTGGTACTTTTCATA---AATGGC 2480
Qy 2292 CCATCTCTTCCAGCAGAAAGTCCTCGGCCATTGAAGCTTCGAAGCATTCTTGACATGAGC 2351
Db 2481 CCTACAGTGCAAAGTTTAGGACCTCCACCTTTGAAACTAAAGAAAATATTAGATATGGCT 2540
Qy 2352 CCTTTTACAGTGACAGACCACACCCCAATGGAGATTGTGGTGGATATTTTCCGAAAGCTG 2411
Db 2541 CCAATAACAGTGACTGATCAAACACCAATGGAAACTGTGGTGGATATGTTTAGAAAACTA 2600
Qy 2412 GGACTGAGGCAGTGCCTTGTAACTCACAATGGGCGCCTCCTTGGCATTATAACAAAAAAA 2471
Db 2601 GGTTTACGTCAGACATTAGTCACACACAATGGGCGTTTGCTCGGTGTTATAACTAAAAAA 2660
Qy 2472 GATATCCTCCGGCATATGGCCCAGACGGCAAACCAAGACCCCGCTTCAATAATGTTCAAC 2531
Db 2661 GATGTTTTACGACATGTAAAACAAATGGATAATGAAGATCCTAATAGTATACTTTTTAAT 2720
Qy 2532 TGAATCTCACAGATGAGGA 2550
Db 2721 TAATATTTACATATATGTA 2739

RESULT 5
AAC95413
ID AAC95413 standard; cDNA; 2553 BP.
XX
AC AAC95413;
XX
DT 19-FEB-2001 (first entry)
XX
DE Cat flea HMT VG Cl channel-like cDNA ORF, SEQ ID NO:1917.
XX
KW Cat flea; hindgut and Malpighian tubule nucleic acid; HMT;
KW flea infestation; vaccine; antiparasitic; therapeutic target;
KW diagnosis; detection; ss.
XX
OS Ctenocephalides felis.
XX
PN WO200061621-A2.
XX
PD 19-OCT-2000.
XX
PF 07-APR-2000; 2000WO-US09437.
XX
PR 09-APR-1999; 99US-0128704.
XX
PA (HESK-) HESKA CORP.
XX
PI Brandt KS, Gaines PJ, Stinchcomb DT, Wisnewski N;
XX
DR WPI; 2000-656323/63.
DR P-PSDB; AAB29627.
XX
PT Flea Malpighian tubule and head and nerve cord tissue derived nucleic
PT acids useful for the prevention, diagnosis and treatment of flea
PT infestations -
XX
PS Claim 1; Page 942-943; 964pp; English.
XX
CC The invention relates to novel cat flea (Ctenocephalides felis) nucleic
CC acids which are expressed in hindgut and Malpighian tubule (HMT) tissue
CC or head and nerve cord (HNC) tissue. The invention also relates to the
CC encoded proteins. The invention additionally encompasses expression
CC constructs, recombinant viruses and recombinant cells comprising the
CC nucleic acids of the invention, recombinant production of the proteins,
CC antibodies against the proteins, a method of identifying inhibitors of
CC the proteins, and compositions comprising the inhibitors for
CC administration to an animal. The nucleic acids, and the proteins they
CC encode may be used in the prevention, treatment and diagnosis of diseases
CC associated with flea infestations. For example, the nucleic acids may be
CC used to produce an HMT or HNC protein according to standard recombinant
CC DNA methodology by inserting the nucleic acids into a host cell and
CC culturing the cell to express the protein. The HMT and HNC nucleic acids
CC may also be used as DNA probes in diagnostic assays (e.g., PCR) to detect
CC and quantitate the presence of cat flea or other homologous nucleic acid
CC sequences in samples. They may also be used to study the expression and
CC function of the proteins and their role in metabolism. The HMT and HNC
CC proteins may be used as antigens in the production of specific
CC antibodies, and in assays to identify modulators (agonists and
CC antagonists) of HMT and/or HNC protein expression and activity. The
CC anti-HMT/HNC protein antibodies and antagonists may also be used to
CC downregulate protein expression and activity. The antibodies may also be
CC used as diagnostic agents for detecting the presence of flea polypeptides
CC in samples (e.g., by enzyme linked immunosorbent assay (ELISA)). The
CC present sequence represents a cat flea HMT cDNA of the invention.
XX
SQ Sequence 2553 BP; 713 A; 443 C; 601 G; 796 T; 0 other;

Query Match 24.1%; Score 873.8; DB 21; Length 2553;
Best Local Similarity 63.4%; Pred. No. 3.8e-125;
Matches 1407; Conservative 0; Mismatches 797; Indels 15; Gaps 4;

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Qy   312 ATTCCAGGTGTTGGTACATATGATGATTTCCATACTATTGATTGGGTGCGAGAAAAATGT 371
         ||||| ||  ||||  ||||||||||||||||||| || ||||||  || || | |

Db   349 ATTCCTGGGATTGGGCAATATGATGATTTCCATACGATAGATTGGCAACGTGATATAGCC 408

Qy   372 AAAGACAGAGAAAGGCATAGACGGATCAACAGCAAAAAGAAAGAATCAGCATGGGAAATG 431
         | |||  ||  || ||| ||  ||  |  |||  |||| ||  |  ||  ||
Db   409 AGAGATCGAATGAGACATCGATATATTGTTAAAAAACGACAAGACTCTATACTAGACCTG 468

Qy   432 ACAAAAAGTTTGTATGATGCGTGGTCAGGATGGCTAGTAGTAACACTAACAGGATTGGCA 491
         | |||  ||  |||||||| |||||||| ||| |  ||  |||  ||  |||
Db   469 ATAAAGGGTGCCCATGATGCCTGGTCAGGTTGGGTGTGTGTTCTCCTAGTCGGGCTGGTG 528

Qy   492 TCAGGGGCACTGGCCGGATTAATAGACATTGCTGCCGATTGGATGACTGACCTAAAGGAG 551
          |||| ||  | || ||  | ||||| || |  ||  |||||||||| ||  ||||| |
Db   529 ACAGGAGCTATTGCAGGCGTCATAGATATCGGAGCAAGTTGGATGACGGATTTAAAGAAC 588

Qy   552 GGCATTTGCCTTAGTGCGTTGTGGTACAACCACGAACAGTGCTGTTGGGGATCTAATGAA 611
         ||  ||||||      || || ||||  ||    ||||| || ||||||  ||  ||||||
Db   589 GGTGTTTGCCCACAAGCATTCTGGTTGAATAGAGAACAATGTTGTTGGTCATTGAATGAA 648

Qy   612 ACAACATTTGAAGAGAGGGATAAATGTCCACAGTGGAAAACATGGGCAGAATTAATCATA 671
         |||||  |||||  ||    |  || ||  ||||  |||   ||  |||  |  ||  |  ||  |
Db   649 ACAACCTTTGATGA---TGGAAATTGCTCACAATGGCTGACTTGGCCTGAGGTTTTCGGA 705

Qy   672 GGTCAAGCAGAGGGTCCTGGTTCTTATATCATGAACTACATAATGTACATCTTCTGGGCC 731
            |    |   ||  | ||  |||| || ||    ||  |  |  || ||  | |||||
Db   706 CAACCTAGAACTGGGGCGGGGGCTTACATAATTGCTTATTTGTTTTATATTATTTGGGCA 765

Qy   732 TTGAGTTTTGCCTTTCTTGCAGTTTCCCTGGTAAAGGTATTTGCTCCATATGCCTGTGGC 791
         ||||  ||||||  |  |  ||||  ||  ||||     |  |||||  ||  |||||  |||||
Db   766 TTGATTTTTGCTTCTTTGGCAGCCTCTTTGGTGCGCATGTTTGCACCTTATGCTTGTGGG 825

Qy   792 TCTGGAATTCCAGAGATTAAAACTATTTTAAGTGGATTCATCATCAGAGGTTACTTGGGA 851
         ||  ||  ||  |||||||||||||||  |||  |  |||||  ||||||||||||||  ||  |  |||.
Db   826 TCAGGTATACCAGAGATTAAAACCATTCTGAGTGGTTTCATCATCAGAGGATATCTTGGA 885

Qy   852 AAATGGACTTTAATGATTAAAACCATCACATTAGTCCTGGCTGTGGCATCAGGTTTGAGT 911
         ||||||||  ||  ||  |||||||     |   |  |   |  ||  ||||   ||  |  ||  |||||||
Db   886 AAATGGACATTGATTATTAAAAGTGTAGGAATCATGTTGTCTGTATCAGCTGGATTGAGT 945

Qy   912 TTAGGAAAAGAAGGTCCCCTGGTACATGTTGCCTGTTGCTGCGGAAATATCTTTTCCTAC 971
         ||  ||  ||||||||||||  |||||||  |||||  |  ||     ||  |||||  ||  ||  ||
Db   946 TTGGGTAAAGAAGGTCCTATGGTACACATTGCCAGCTGTATAGGTAATATATTGTCTTAT 1005

Qy   972 CTCTTTCCAAAGTATAGCACAAACGAAGCTAAAAAAAGGGAGGTGCTATCAGCTGCCTCA 1031
          |  |||||  ||  |||  |     ||  |||||  ||  |||  |  |||  |  |||||||  ||   ||
Db  1006 TTATTTCCTAAATATGGTCGGAATGAAGCAAAGAAACGAGAGATTTTATCAGCAGCTGCA 1065

Qy  1032 GCTGCAGGGGTTTCTGTAGCTTTTGGTGCACCAATTGGAGGAGTTCTTTTTAGCCTGGAA 1091
         ||  ||  ||  ||  |||||  ||  |||||  |||||  ||||||||  ||  |||||  ||   |||||
Db  1066 GCAGCTGGTGTATCTGTTGCATTTGGAGCACCTATTGGAGGTGTGCTTTTCAGTTTGGAA 1125

Qy  1092 GAGGTTAGCTATTATTTTCCTCTCAAAACTTTATGGAGATCATTTTTTGCTGCTTTAGTG 1151
         |||||  |||||  |||||  ||   |  ||  ||  ||||||||||||||  ||     ||||||   |
Db  1126 GAGGTGAGCTACTATTTCCCATTGAAGACCTTATGGAGATCATTCTTCTGTGCTTTGATA 1185

Qy  1152 GCTGCATTTGTTTTGAGGTCCATCAATCCATTTGGTAACAGCCGTCTGGTCCTTTTTTAT 1211
         ||  ||  ||  |  |||  |  |||||  ||||||||||  ||     |      ||||||||  |||
Db  1186 GCAGCTTTCATATTGCGATCCATAAATCCATTTGGAAATGAGCACTCTGTCCTTTTCTAT 1245

Qy  1212 GTGGAGTATCATACACCATGGTACCTTTTTGAACTGTTTCCTTTTATTCTTCTAGGGGTA 1271
         |||||  ||   |||  |||  |||     ||||||||||  |  |||||  ||     ||  ||  ||
Db  1246 GTGGAATACAATAAACCTTGGATATTTTTTGAACTGATACCTTTCATAGGCCTTGGAATA 1305

Qy  1272 TTTGGAGGGCTTTGGGGAGCCTTTTTCATTAGGGCAAATATTGCCTGGTGTCGTCGACGC 1331
          ||||  ||  ||    |  |  |  ||  ||  |  ||  |||  |    |||||||||     ||
Db  1306 ATTGGTGGTGTTGTAGCAACGCTGTTTATAAAAGCTAATTTGTACTGGTGTCGCTACCGT 1365

Qy  1332 AAGTCCACGAAATTTGGAAAGTATCCCGTTCTGGAAGTCATTATTGTTGCAGCCATTACT 1391
         ||  |    |  |||  |  |||  ||||  ||||||    |||||   |   |||||||  |      ||
Db  1366 AAATTTTCTAAACTAGGACAGTACCCCGTTGCAGAAGTTTTAGTTGTTGCTGTTGCAACA 1425

Qy  1392 GCTGTGATAGCCTTCCCTAATCCATACACTAGGCTAAACACCAGTGAACTGATCAAAGAG 1451
         ||  |||||  ||  |   ||||||||  |||||  |||  |  ||  ||  |||  |||||||   |
Db  1426 GCAGTGATTGCTTATCCTAATCCTTACACCAGGATGAATACTAGTCAACTGATTTATTTA 1485
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Qy   1452 CTTTTTACAGACTGTGGTCCCCTGGAATCCTCTTCTCTTTGTGACTACAGAAATGACATG 1511
Db   1486 CTATTCAGCCAATGCGGGATTTCCAATTCTGATCCTTTGTGTGATTACAATCGCAATTTC 1545

Qy   1512 AATGCCAGTAAAATTGTCGATGACATTCCTGATCGTCCAGCAGGCATTGGAGTATATTCA 1571
Db   1546 ACTGATGTTAAATCAGCTATAGAAATAGCAG------CAGCTGGTCCTGGTGTCTACCAG 1599

Qy   1572 GCTATATGGCAGTTATGCCTGGCACTCATATTTAAAATCATAATGACAGTATTCACTTTT 1631
Db   1600 GCTGTGTGGTTGCTCCTGATTGCTTTGGTACTGAAATTGGGAATGACTGTATTTACCTTT 1659

Qy   1632 GGCATCAAGGTTCCATCAGGCTTGTTCATCCCCAGCATGGCCATTGGAGCGATCGCAGGA 1691
Db   1660 GGTATGAAAGTACCATGTGGTCTGTTTATCCCAAGTTTATGCCTAGGAGCTATTATGGGT 1719

Qy   1692 AGGATTGTGGGGATTGCGGTGGAGCAGCTTGCCTACTATCACCACGACTGGTTTATCTTT 1751
Db   1720 AGAATTGTGGGCATTGGAATTGAACAATTGGCTTACTATTATCCAAAATTATGGTTCTTT 1779

Qy   1752 AAGGAGTGGTGTGAGGTCGGGGCTGATTGCATTACACCTGGCCTTTATGCCATGGTTGGT 1811
Db   1780 TCTGGTGAATGCTCAACTGGAGACAATTGCATCACACCGGGCCTGTATGCTATGGTGGGC 1839

Qy   1812 GCTGCTGCATGCTTAGGTGGTGTGACAAGAATGACTGTCTCCCTGGTGGTTATTGTTTTT 1871
Db   1840 GCTGCAGCTGTTTTAGGTGGTGTCACTAGAATGACAGTTTCTCTGGTGGTAATAATGTTT 1899

Qy   1872 GAGCTTACTGGAGGCTTGGAATATATTGTTCCCCTTATGGCTGCAGTCATGACCAGTAAA 1931
Db   1900 GAACTGACTGGTGGTGTACGTTATATCGTGCCCTTAATGGCAGCAGCTATGGCTTCCAAA 1959

Qy   1932 TGGGTTGGAGATGCCTTTGGCAGGGAAGGCATTTATGAAGCACACATCCGATTAAATGGA 1991
Db   1960 TGGGTTGGTGATGCTTTGGGCAGACAGGGTATATATGATGCCCATATACAGCTTAATGGA 2019

Qy   1992 TACCCTTTCTTGGATGCAAAAGAAGAATTCACTCATACCACCCTGGCTGCTGACGTTATG 2051
Db   2020 TATCCATTCTTGGACAGTAAAGATGAATTTGCACATACATCTTTAGCTGCAGATGTCATG 2079

Qy   2052 AGACCTCGAAGGAATGATCCTCCCTTAGCTGTCCTGACACAGGACAATATGACAGTGGAT 2111
Db   2080 CAACCCAAGAGGAATGA---AACATTAAGTGTAATCACTCAAGACTCGATGACTGTGGAT 2136

Qy   2112 GATATAGAAAACATGATTAATGAAACCAGCTACAATGGATTTCCTGTCATAATGTCAAAA 2171
Db   2137 GATGTTGAAGGTTTACTGAAAGAAACTGAGCACAATGGATATCCAGTTGTTGTTTCCAGA 2196

Qy   2172 GAATCTCAGAGATTAGTGGGATTTGCCCTCAGAAGAGACCTGACAATTGCAATAGAAAGT 2231
Db   2197 GAATCTCAGTATCTTGTTGGATTTGTTTTGAGGAGGGACTTAAATCTAGCCATAGCCAAT 2256

Qy   2232 GCCAGGAAAAAACAAGAAGGTATCGTTGGCAGTTCTCGGGTGTGTTTTGCACAGCACACC 2291
Db   2257 GCTAGACGCATGATCGATGGGATAACAGGACAAAGTTTGGTACTTTTCATA---AATGGC 2313

Qy   2292 CCATCTCTTCCAGCAGAAAGTCCTCGGCCATTGAAGCTTCGAAGCATTCTTGACATGAGC 2351
Db   2314 CCTACAGTGCAAAGTTTAGGACCTCCACCTTTGAAACTAAAGAAAATATTAGATATGGCT 2373

Qy   2352 CCTTTTACAGTGACAGACCACACCCCAATGGAGATTGTGGTGGATATTTTCCGAAAGCTG 2411
Db   2374 CCAATAACAGTGACTGATCAAACACCAATGGAAACTGTGGTGGATATGTTTAGAAAACTA 2433

Qy   2412 GGACTGAGGCAGTGCCTTGTAACTCACAATGGGCGCCTCCTTGGCATTATAACAAAAAAA 2471
Db   2434 GGTTTACGTCAGACATTAGTCACACACAATGGGCGTTTGCTCGGTGTTATAACTAAAAAA 2493

Qy   2472 GATATCCTCCGGCATATGGCCCAGACGGCAAACCAAGACCCCGCTTCAATAATGTTCAA 2530
Db   2494 GATGTTTTACGACATGTAAAACAAATGGATAATGAAGATCCTAATAGTATACTTTTTAA 2552
```

RESULT 6
AAC95414/c
ID AAC95414 standard; cDNA; 2553 BP.
XX
AC AAC95414;
XX
DT 19-FEB-2001 (first entry)
XX
DE Cat flea HMT VG Cl channel-like cDNA ORF complement, SEQ ID NO:1918.
XX
KW Cat flea; hindgut and Malpighian tubule nucleic acid; HMT;
KW flea infestation; vaccine; antiparasitic; therapeutic target;
KW diagnosis; detection; ss.
XX
OS Ctenocephalides felis.
XX
PN WO200061621-A2.
XX
PD 19-OCT-2000.
XX
PF 07-APR-2000; 2000WO-US09437.
XX
PR 09-APR-1999; 99US-0128704.
XX
PA (HESK-) HESKA CORP.
XX
PI Brandt KS, Gaines PJ, Stinchcomb DT, Wisnewski N;
XX
DR WPI; 2000-656323/63.
DR P-PSDB; AAB29627.
XX
PT Flea Malpighian tubule and head and nerve cord tissue derived nucleic
PT acids useful for the prevention, diagnosis and treatment of flea
PT infestations -
XX
PS Claim 1; Page 944; 964pp; English.
XX
CC The invention relates to novel cat flea (Ctenocephalides felis) nucleic
CC acids which are expressed in hindgut and Malpighian tubule (HMT) tissue
CC or head and nerve cord (HNC) tissue. The invention also relates to the
CC encoded proteins. The invention additionally encompasses expression
CC constructs, recombinant viruses and recombinant cells comprising the
CC nucleic acids of the invention, recombinant production of the proteins,
CC antibodies against the proteins, a method of identifying inhibitors of
CC the proteins, and compositions comprising the inhibitors for
CC administration to an animal. The nucleic acids, and the proteins they
CC encode may be used in the prevention, treatment and diagnosis of diseases
CC associated with flea infestations. For example, the nucleic acids may be
CC used to produce an HMT or HNC protein according to standard recombinant
CC DNA methodology by inserting the nucleic acids into a host cell and
CC culturing the cell to express the protein. The HMT and HNC nucleic acids
CC may also be used as DNA probes in diagnostic assays (e.g., PCR) to detect
CC and quantitate the presence of cat flea or other homologous nucleic acid
CC sequences in samples. They may also be used to study the expression and
CC function of the proteins and their role in metabolism. The HMT and HNC
CC proteins may be used as antigens in the production of specific
CC antibodies, and in assays to identify modulators (agonists and
CC antagonists) of HMT and/or HNC protein expression and activity. The
CC anti-HMT/HNC protein antibodies and antagonists may also be used to
CC downregulate protein expression and activity. The antibodies may also be
CC used as diagnostic agents for detecting the presence of flea polypeptides
CC in samples (e.g., by enzyme linked immunosorbent assay (ELISA)). The
CC present sequence represents a cat flea HMT cDNA of the invention.
XX
SQ Sequence 2553 BP; 796 A; 601 C; 443 G; 713 T; 0 other;

Query Match 24.1%; Score 873.8; DB 21; Length 2553;
Best Local Similarity 63.4%; Pred. No. 3.8e-125;
Matches 1407; Conservative 0; Mismatches 797; Indels 15; Gaps 4;

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Qy    312 ATTCCAGGTGTTGGTACATATGATGATTTCCATACTATTGATTGGGTGCGAGAAAAATGT 371
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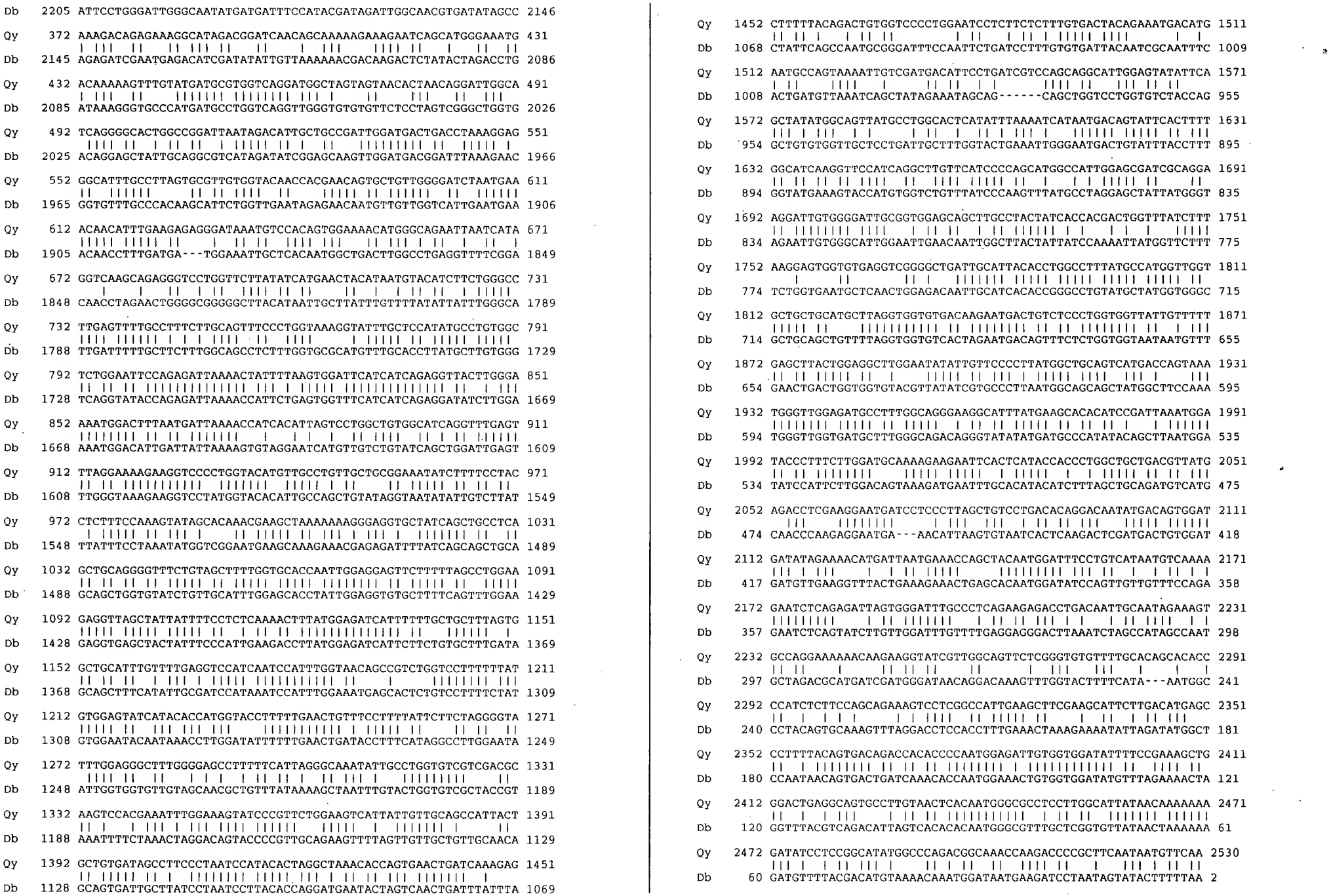

RESULT 7
AAC95407
ID AAC95407 standard; cDNA; 1968 BP.
XX
AC AAC95407;
XX
DT 19-FEB-2001 (first entry)
XX
DE Cat flea HMT VG Cl channel-like partial cDNA, SEQ ID NO:1910.
XX
KW Cat flea; hindgut and Malpighian tubule nucleic acid; HMT;
KW flea infestation; vaccine; antiparasitic; therapeutic target;
KW diagnosis; detection; ss.
XX
OS Ctenocephalides felis.
XX
PN WO200061621-A2.
XX
PD 19-OCT-2000.
XX
PF 07-APR-2000; 2000WO-US09437.
XX
PR 09-APR-1999; 99US-0128704.
XX
PA (HESK-) HESKA CORP.
XX
PI Brandt KS, Gaines PJ, Stinchcomb DT, Wisnewski N;
XX
DR WPI; 2000-656323/63.
XX
PT Flea Malpighian tubule and head and nerve cord tissue derived nucleic
PT acids useful for the prevention, diagnosis and treatment of flea
PT infestations -
XX
PS Claim 1; Page 930-931; 964pp; English.
XX
CC The invention relates to novel cat flea (Ctenocephalides felis) nucleic
CC acids which are expressed in hindgut and Malpighian tubule (HMT) tissue
CC or head and nerve cord (HNC) tissue. The invention also relates to the
CC encoded proteins. The invention additionally encompasses expression
CC constructs, recombinant viruses and recombinant cells comprising the
CC nucleic acids of the invention, recombinant production of the proteins,
CC antibodies against the proteins, a method of identifying inhibitors of
CC the proteins, and compositions comprising the inhibitors for
CC administration to an animal. The nucleic acids, and the proteins they
CC encode may be used in the prevention, treatment and diagnosis of diseases
CC associated with flea infestations. For example, the nucleic acids may be
CC used to produce an HMT or HNC protein according to standard recombinant
CC DNA methodology by inserting the nucleic acids into a host cell and
CC culturing the cell to express the protein. The HMT and HNC nucleic acids
CC may also be used as DNA probes in diagnostic assays (e.g., PCR) to detect
CC and quantitate the presence of cat flea or other homologous nucleic acid
CC sequences in samples. They may also be used to study the expression and
CC function of the proteins and their role in metabolism. The HMT and HNC
CC proteins may be used as antigens in the production of specific
CC antibodies, and in assays to identify modulators (agonists and
CC antagonists) of HMT and/or HNC protein expression and activity. The
CC anti-HMT/HNC protein antibodies and antagonists may also be used to
CC downregulate protein expression and activity. The antibodies may also be
CC used as diagnostic agents for detecting the presence of flea polypeptides
CC in samples (e.g., by enzyme linked immunosorbent assay (ELISA)). The
CC present sequence represents a cat flea HMT cDNA of the invention.
XX
SQ Sequence 1968 BP; 519 A; 329 C; 481 G; 639 T; 0 other;

Query Match 21.8%; Score 791; DB 21; Length 1968;
Best Local Similarity 64.3%; Pred. No. 1.8e-112;
Matches 1238; Conservative 0; Mismatches 675; Indels 12; Gaps 3;

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Qy    312 ATTCCAGGTGTTGGTACATATGATGATTTCCATACTATTGATTGGGTGCGAGAAAAATGT 371
Db     45 ATTCCTGGGATTGGGCAATATGATGATTTCCATACGATAGATTGGCAACGTGATATAGCC 104

Qy    372 AAAGACAGAGAAAGGCATAGACGGATCAACAGCAAAAAGAAAGAATCAGCATGGGAAATG 431
Db    105 AGAGATCGAATGAGACATCGATATATTGTTAAAAAACGACAAGACTCTATACTAGACCTG 164

Qy    432 ACAAAAAGTTTGTATGATGCGTGGTCAGGATGGCTAGTAGTAACACTAACAGGATTGGCA 491
Db    165 ATAAAGGGTGCCCATGATGCCTGGTCAGGTTGGGTGTGTGTTCTCCTAGTCGGGCTGGTG 224

Qy    492 TCAGGGGCACTGGCCGGATTAATAGACATTGCTGCCGATTGGATGACTGACCTAAAGGAG 551
Db    225 ACAGGAGCTATTGCAGGCGTCATAGATATCGGAGCAAGTTGGATGACGGATTTAAAGAAC 284

Qy    552 GGCATTTGCCTTAGTGCGTTGTGGTACAACCACGAACAGTGCTGTTGGGGATCTAATGAA 611
Db    285 GGTGTTTGCCCACAAGCATTCTGGTTGAATAGAGAACAATGTTGTTGGTCATTGAATGAA 344

Qy    612 ACAACATTTGAAGAGAGGGATAAATGTCCACAGTGGAAAACATGGGCAGAATTAATCATA 671
Db    345 ACAACCTTTGATGA---TGGAAATTGCTCACAATGGCTGACTTGGCCTGAGGTTTTCGGA 401

Qy    672 GGTCAAGCAGAGGGTCCTGGTTCTTATATCATGAACTACATAATGTACATCTTCTGGGCC 731
Db    402 CAACCTAGAACTGGGGCGGGGGCTTACATAATTGCTTATTTGTTTTATATTATTTGGGCA 461

Qy    732 TTGAGTTTTGCCTTTCTTGCAGTTTCCCTGGTAAAGGTATTTGCTCCATATGCCTGTGGC 791
Db    462 TTGATTTTTGCTTCTTTGGCAGCCTCTTTGGTGCGCATGTTTGCACCTTATGCTTGTGGG 521

Qy    792 TCTGGAATTCCAGAGATTAAAACTATTTTAAGTGGATTCATCATCAGAGGTTACTTGGGA 851
Db    522 TCAGGTATACCAGAGATTAAAACCATTCTGAGTGGTTTCATCATCAGAGGATATCTTGGA 581

Qy    852 AAATGGACTTTAATGATTAAAACCATCACATTAGTCCTGGCTGTGGCATCAGGTTTGAGT 911
Db    582 AAATGGACATTGATTATTAAAAGTGTAGGAATCATGTTGTCTGTATCAGCTGGATTGAGT 641

Qy    912 TTAGGAAAAGAAGGTCCCCTGGTACATGTTGCCTGTTGCTGCGGAAATATCTTTTCCTAC 971
Db    642 TTGGGTAAAGAAGGTCCTATGGTACACATTGCCAGCTGTATAGGTAATATATTGTCTTAT 701

Qy    972 CTCTTTCCAAAGTATAGCACAAACGAAGCTAAAAAAAGGGAGGTGCTATCAGCTGCCTCA 1031
Db    702 TTATTTCCTAAATATGGTCGGAATGAAGCAAAGAAACGAGAGATTTTATCAGCAGCTGCA 761

Qy   1032 GCTGCAGGGGTTTCTGTAGCTTTTGGTGCACCAATTGGAGGAGTTCTTTTTAGCCTGGAA 1091
Db    762 GCAGCTGGTGTATCTGTTGCATTTGGAGCACCTATTGGAGGTGTGCTTTTCAGTTTGGAA 821

Qy   1092 GAGGTTAGCTATTATTTTCCTCTCAAAACTTTATGGAGATCATTTTTTGCTGCTTTAGTG 1151
Db    822 GAGGTGAGCTACTATTTCCCATTGAAGACCTTATGGAGATCATTCTTCTGTGCTTTGATA 881

Qy   1152 GCTGCATTTGTTTTGAGGTCCATCAATCCATTTGGTAACAGCCGTCTGGTCCTTTTTTAT 1211
Db    882 GCAGCTTTCATATTGCGATCCATAAATCCATTTGGAAATGAGCACTCTGTCCTTTTCTAT 941

Qy   1212 GTGGAGTATCATACACCATGGTACCTTTTTGAACTGTTTCCTTTTATTCTTCTAGGGGTA 1271
Db    942 GTGGAATACAATAAACCTTGGATATTTTTTGAACTGATACCTTTCATAGGCCTTGGAATA 1001

Qy   1272 TTTGGAGGGCTTTGGGGAGCCTTTTTCATTAGGGCAAATATTGCCTGGTGTCGTCGACGC 1331
Db   1002 ATTGGTGGTGTTGTAGCAACGCTGTTTATAAAAGCTAATTTGTACTGGTGTCGCTACCGT 1061

Qy   1332 AAGTCCACGAAATTTGGAAAGTATCCCGTTCTGGAAGTCATTATTGTTGCAGCCATTACT 1391
Db   1062 AAATTTTCTAAACTAGGACAGTACCCCGTTGCAGAAGTTTTAGTTGTTGCTGTTGCAACA 1121

Qy   1392 GCTGTGATAGCCTTCCCTAATCCATACACTAGGCTAAACACCAGTGAACTGATCAAAGAG 1451
Db   1122 GCAGTGATTGCTTATCCTAATCCTTACACCAGGATGAATACTAGTCAACTGATTTATTTA 1181
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Qy   1452 CTTTTTACAGACTGTGGTCCCCTGGAATCCTCTTCTCTTTGTGACTACAGAAATGACATG 1511
Db   1182 CTATTCAGCCAATGCGGGATTTCCAATTCTGATCCTTTGTGTGATTACAATCGCAATTTC 1241

Qy   1512 AATGCCAGTAAAATTGTCGATGACATTCCTGATCGTCCAGCAGGCATTGGAGTATATTCA 1571
Db   1242 ACTGATGTTAAATCAGCTATAGAAATAGCAG------CAGCTGGTCCTGGTGTCTACCAG 1295

Qy   1572 GCTATATGGCAGTTATGCCTGGCACTCATATTTAAAATCATAATGACAGTATTCACTTTT 1631
Db   1296 GCTGTGTGGTTGCTCCTGATTGCTTTGGTACTGAAATTGGGAATGACTGTATTTACCTTT 1355

Qy   1632 GGCATCAAGGTTCCATCAGGCTTGTTCATCCCCAGCATGGCCATTGGAGCGATCGCAGGA 1691
Db   1356 GGTATGAAAGTACCATGTGGTCTGTTTATCCCAAGTTTATGCCTAGGAGCTATTATGGGT 1415

Qy   1692 AGGATTGTGGGGATTGCGGTGGAGCAGCTTGCCTACTATCACCACGACTGGTTTATCTTT 1751
Db   1416 AGAATTGTGGGCATTGGAATTGAACAATTGGCTTACTATTATCCAAAATTATGGTTCTTT 1475

Qy   1752 AAGGAGTGGTGTGAGGTCGGGGCTGATTGCATTACACCTGGCCTTTATGCCATGGTTGGT 1811
Db   1476 TCTGGTGAATGCTCAACTGGAGACAATTGCATCACACCGGGCCTGTATGCTATGGTGGGC 1535

Qy   1812 GCTGCTGCATGCTTAGGTGGTGTGACAAGAATGACTGTCTCCCTGGTGGTTATTGTTTTT 1871
Db   1536 GCTGCAGCTGTTTTAGGTGGTGTCACTAGAATGACAGTTTCTCTGGTGGTAATAATGTTT 1595

Qy   1872 GAGCTTACTGGAGGCTTGGAATATATTGTTCCCCTTATGGCTGCAGTCATGACCAGTAAA 1931
Db   1596 GAACTGACTGGTGGTGTACGTTATATCGTGCCCTTAATGGCAGCAGCTATGGCTTCCAAA 1655

Qy   1932 TGGGTTGGAGATGCCTTTGGCAGGGAAGGCATTTATGAAGCACACATCCGATTAAATGGA 1991
Db   1656 TGGGTTGGTGATGCTTTGGGCAGACAGGGTATATATGATGCCCATATACAGCTTAATGGA 1715

Qy   1992 TACCCTTTCTTGGATGCAAAAGAAGAATTCACTCATACCACCCTGGCTGCTGACGTTATG 2051
Db   1716 TATCCATTCTTGGACAGTAAAGATGAATTTGCACATACATCTTTAGCTGCAGATGTCATG 1775

Qy   2052 AGACCTCGAAGGAATGATCCTCCCTTAGCTGTCCTGACACAGGACAATATGACAGTGGAT 2111
Db   1776 CAACCCAAGAGGAATGA---AACATTAAGTGTAATCACTCAAGACTCGATGACTGTGGAT 1832

Qy   2112 GATATAGAAAACATGATTAATGAAACCAGCTACAATGGATTTCCTGTCATAATGTCAAAA 2171
Db   1833 GATGTTGAAGGTTTACTGAAAGAAACTGAGCACAATGGATATCCAGTTGTTGTTTCCAGA 1892

Qy   2172 GAATCTCAGAGATTAGTGGGATTTGCCCTCAGAAGAGACCTGACAATTGCAATAGAAAGT 2231
Db   1893 GAATCTCAGTATCTTGTTGGATTTGTTTTGAGGAGGGACTTAAATCTAGCCATAGCCAAT 1952

Qy   2232 GCCAG 2236
Db   1953 GCTAG 1957
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RESULT 8
AAC95408/c
ID AAC95408 standard; cDNA; 1968 BP.
XX
AC AAC95408;
XX
DT 19-FEB-2001 (first entry)
XX
DE Cat flea HMT VG Cl channel-like cDNA complement, SEQ ID NO:1911.
XX
KW Cat flea; hindgut and Malpighian tubule nucleic acid; HMT;
KW flea infestation; vaccine; antiparasitic; therapeutic target;
KW diagnosis; detection; ss.
XX
OS Ctenocephalides felis.
XX

PN WO200061621-A2.
XX
PD 19-OCT-2000.
XX
PF 07-APR-2000; 2000WO-US09437.
XX
PR 09-APR-1999; 99US-0128704.
XX
PA (HESK-) HESKA CORP.
XX
PI Brandt KS, Gaines PJ, Stinchcomb DT, Wisnewski N;
XX
DR WPI; 2000-656323/63.
XX
PT Flea Malpighian tubule and head and nerve cord tissue derived nucleic
PT acids useful for the prevention, diagnosis and treatment of flea
PT infestations -
XX
PS Claim 1; Page 931-932; 964pp; English.
XX
CC The invention relates to novel cat flea (Ctenocephalides felis) nucleic
CC acids which are expressed in hindgut and Malpighian tubule (HMT) tissue
CC or head and nerve cord (HNC) tissue. The invention also relates to the
CC encoded proteins. The invention additionally encompasses expression
CC constructs, recombinant viruses and recombinant cells comprising the
CC nucleic acids of the invention, recombinant production of the proteins,
CC antibodies against the proteins, a method of identifying inhibitors of
CC the proteins, and compositions comprising the inhibitors for
CC administration to an animal. The nucleic acids, and the proteins they
CC encode may be used in the prevention, treatment and diagnosis of diseases
CC associated with flea infestations. For example, the nucleic acids may be
CC used to produce an HMT or HNC protein according to standard recombinant
CC DNA methodology by inserting the nucleic acids into a host cell and
CC culturing the cell to express the protein. The HMT and HNC nucleic acids
CC may also be used as DNA probes in diagnostic assays (e.g., PCR) to detect
CC and quantitate the presence of cat flea or other homologous nucleic acid
CC sequences in samples. They may also be used to study the expression and
CC function of the proteins and their role in metabolism. The HMT and HNC
CC proteins may be used as antigens in the production of specific
CC antibodies, and in assays to identify modulators (agonists and
CC antagonists) of HMT and/or HNC protein expression and activity. The
CC anti-HMT/HNC protein antibodies and antagonists may also be used to
CC downregulate protein expression and activity. The antibodies may also be
CC used as diagnostic agents for detecting the presence of flea polypeptides
CC in samples (e.g., by enzyme linked immunosorbent assay (ELISA)). The
CC present sequence represents a cat flea HMT cDNA of the invention.
XX
SQ Sequence 1968 BP; 639 A; 481 C; 329 G; 519 T; 0 other;

Query Match 21.8%; Score 791; DB 21; Length 1968;
Best Local Similarity 64.3%; Pred. No. 1.8e-112;
Matches 1238; Conservative 0; Mismatches 675; Indels 12; Gaps 3;

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Qy    312 ATTCCAGGTGTTGGTACATATGATGATTTCCATACTATTGATTGGGTGCGAGAAAAATGT 371
Db   1924 ATTCCTGGGATTGGGCAATATGATGATTTCCATACGATAGATTGGCAACGTGATATAGCC 1865

Qy    372 AAAGACAGAGAAAGGCATAGACGGATCAACAGCAAAAAGAAAGAATCAGCATGGGAAATG 431
Db   1864 AGAGATCGAATGAGACATCGATATATTGTTAAAAAACGACAAGACTCTATACTAGACCTG 1805

Qy    432 ACAAAAAGTTTGTATGATGCGTGGTCAGGATGGCTAGTAGTAACACTAACAGGATTGGCA 491
Db   1804 ATAAAGGGTGCCCATGATGCCTGGTCAGGTTGGGTGTGTGTTCTCCTAGTCGGGCTGGTG 1745

Qy    492 TCAGGGGCACTGGCCGGATTAATAGACATTGCTGCCGATTGGATGACTGACCTAAAGGAG 551
Db   1744 ACAGGAGCTATTGCAGGCGTCATAGATATCGGAGCAAGTTGGATGACGGATTTAAAGAAC 1685

Qy    552 GGCATTTGCCTTAGTGCGTTGTGGTACAACCACGAACAGTGCTGTTGGGGATCTAATGAA 611
Db   1684 GGTGTTTGCCCACAAGCATTCTGGTTGAATAGAGAACAATGTTGTTGGTCATTGAATGAA 1625
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Qy    612 ACAACATTTGAAGAGAGGGATAAATGTCCACAGTGGAAAACATGGGCAGAATTAATCATA 671
Db   1624 ACAACCTTTGATGA---TGGAAATTGCTCACAATGGCTGACTTGGCCTGAGGTTTTCGGA 1568

Qy    672 GGTCAAGCAGAGGGTCCTGGTTCTTATATCATGAACTACATAATGTACATCTTCTGGGCC 731
Db   1567 CAACCTAGAACTGGGGCGGGGGCTTACATAATTGCTTATTTGTTTTATATTATTTGGGCA 1508

Qy    732 TTGAGTTTTGCCTTTCTTGCAGTTTCCCTGGTAAAGGTATTTGCTCCATATGCCTGTGGC 791
Db   1507 TTGATTTTTGCTTCTTTGGCAGCCTCTTTGGTGCGCATGTTTGCACCTTATGCTTGTGGG 1448

Qy    792 TCTGGAATTCCAGAGATTAAAACTATTTTAAGTGGATTCATCATCAGAGGTTACTTGGGA 851
Db   1447 TCAGGTATACCAGAGATTAAAACCATTCTGAGTGGTTTCATCATCAGAGGATATCTTGGA 1388

Qy    852 AAATGGACTTTAATGATTAAAACCATCACATTAGTCCTGGCTGTGGCATCAGGTTTGAGT 911
Db   1387 AAATGGACATTGATTATTAAAAGTGTAGGAATCATGTTGTCTGTATCAGCTGGATTGAGT 1328

Qy    912 TTAGGAAAAGAAGGTCCCCTGGTACATGTTGCCTGTTGCTGCGGAAATATCTTTTCCTAC 971
Db   1327 TTGGGTAAAGAAGGTCCTATGGTACACATTGCCAGCTGTATAGGTAATATATTGTCTTAT 1268

Qy    972 CTCTTTCCAAAGTATAGCACAAACGAAGCTAAAAAAAGGGAGGTGCTATCAGCTGCCTCA 1031
Db   1267 TTATTTCCTAAATATGGTCGGAATGAAGCAAAGAAACGAGAGATTTTATCAGCAGCTGCA 1208

Qy   1032 GCTGCAGGGGTTTCTGTAGCTTTTGGTGCACCAATTGGAGGAGTTCTTTTTAGCCTGGAA 1091
Db   1207 GCAGCTGGTGTATCTGTTGCATTTGGAGCACCTATTGGAGGTGTGCTTTTCAGTTTGGAA 1148

Qy   1092 GAGGTTAGCTATTATTTTCCTCTCAAAACTTTATGGAGATCATTTTTTGCTGCTTTAGTG 1151
Db   1147 GAGGTGAGCTACTATTTCCCATTGAAGACCTTATGGAGATCATTCTTCTGTGCTTTGATA 1088

Qy   1152 GCTGCATTTGTTTTGAGGTCCATCAATCCATTTGGTAACAGCCGTCTGGTCCTTTTTTAT 1211
Db   1087 GCAGCTTTCATATTGCGATCCATAAATCCATTTGGAAATGAGCACTCTGTCCTTTTCTAT 1028

Qy   1212 GTGGAGTATCATACACCATGGTACCTTTTTGAACTGTTTCCTTTTATTCTTCTAGGGGTA 1271
Db   1027 GTGGAATACAATAAACCTTGGATATTTTTTGAACTGATACCTTTCATAGGCCTTGGAATA 968

Qy   1272 TTTGGAGGGCTTTGGGGAGCCTTTTTCATTAGGGCAAATATTGCCTGGTGTCGTCGACGC 1331
Db    967 ATTGGTGGTGTTGTAGCAACGCTGTTTATAAAAGCTAATTTGTACTGGTGTCGCTACCGT 908

Qy   1332 AAGTCCACGAAATTTGGAAAGTATCCCGTTCTGGAAGTCATTATTGTTGCAGCCATTACT 1391
Db    907 AAATTTTCTAAACTAGGACAGTACCCCGTTGCAGAAGTTTTAGTTGTTGCTGTTGCAACA 848

Qy   1392 GCTGTGATAGCCTTCCCTAATCCATACACTAGGCTAAACACCAGTGAACTGATCAAAGAG 1451
Db    847 GCAGTGATTGCTTATCCTAATCCTTACACCAGGATGAATACTAGTCAACTGATTTATTTA 788

Qy   1452 CTTTTTACAGACTGTGGTCCCCTGGAATCCTCTTCTCTTTGTGACTACAGAAATGACATG 1511
Db    787 CTATTCAGCCAATGCGGGATTTCCAATTCTGATCCTTTGTGTGATTACAATCGCAATTTC 728

Qy   1512 AATGCCAGTAAAATTGTCGATGACATTCCTGATCGTCCAGCAGGCATTGGAGTATATTCA 1571
Db    727 ACTGATGTTAAATCAGCTATAGAAATAGCAG------CAGCTGGTCCTGGTGTCTACCAG 674

Qy   1572 GCTATATGGCAGTTATGCCTGGCACTCATATTTAAAATCATAATGACAGTATTCACTTTT 1631
Db    673 GCTGTGTGGTTGCTCCTGATTGCTTTGGTACTGAAATTGGGAATGACTGTATTTACCTTT 614

Qy   1632 GGCATCAAGGTTCCATCAGGCTTGTTCATCCCCAGCATGGCCATTGGAGCGATCGCAGGA 1691
Db    613 GGTATGAAAGTACCATGTGGTCTGTTTATCCCAAGTTTATGCCTAGGAGCTATTATGGGT 554

Qy   1692 AGGATTGTGGGGATTGCGGTGGAGCAGCTTGCCTACTATCACCACGACTGGTTTATCTTT 1751

Db    553 AGAATTGTGGGCATTGGAATTGAACAATTGGCTTACTATTATCCAAAATTATGGTTCTTT 494

Qy   1752 AAGGAGTGGTGTGAGGTCGGGGCTGATTGCATTACACCTGGCCTTTATGCCATGGTTGGT 1811
Db    493 TCTGGTGAATGCTCAACTGGAGACAATTGCATCACACCGGGCCTGTATGCTATGGTGGGC 434

Qy   1812 GCTGCTGCATGCTTAGGTGGTGTGACAAGAATGACTGTCTCCCTGGTGGTTATTGTTTTT 1871
Db    433 GCTGCAGCTGTTTTAGGTGGTGTCACTAGAATGACAGTTTCTCTGGTGGTAATAATGTTT 374

Qy   1872 GAGCTTACTGGAGGCTTGGAATATATTGTTCCCCTTATGGCTGCAGTCATGACCAGTAAA 1931
Db    373 GAACTGACTGGTGGTGTACGTTATATCGTGCCCTTAATGGCAGCAGCTATGGCTTCCAAA 314

Qy   1932 TGGGTTGGAGATGCCTTTGGCAGGGAAGGCATTTATGAAGCACACATCCGATTAAATGGA 1991
Db    313 TGGGTTGGTGATGCTTTGGGCAGACAGGGTATATATGATGCCCATATACAGCTTAATGGA 254

Qy   1992 TACCCTTTCTTGGATGCAAAAGAAGAATTCACTCATACCACCCTGGCTGCTGACGTTATG 2051
Db    253 TATCCATTCTTGGACAGTAAAGATGAATTTGCACATACATCTTTAGCTGCAGATGTCATG 194

Qy   2052 AGACCTCGAAGGAATGATCCTCCCTTAGCTGTCCTGACACAGGACAATATGACAGTGGAT 2111
Db    193 CAACCCAAGAGGAATGA---AACATTAAGTGTAATCACTCAAGACTCGATGACTGTGGAT 137

Qy   2112 GATATAGAAAACATGATTAATGAAACCAGCTACAATGGATTTCCTGTCATAATGTCAAAA 2171
Db    136 GATGTTGAAGGTTTACTGAAAGAAACTGAGCACAATGGATATCCAGTTGTTGTTTCCAGA 77

Qy   2172 GAATCTCAGAGATTAGTGGGATTTGCCCTCAGAAGAGACCTGACAATTGCAATAGAAAGT 2231
Db     76 GAATCTCAGTATCTTGTTGGATTTGTTTTGAGGAGGGACTTAAATCTAGCCATAGCCAAT 17

Qy   2232 GCCAG 2236
Db     16 GCTAG 12
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RESULT 9
AAD05207
ID AAD05207 standard; DNA; 3366 BP.
XX
AC AAD05207;
XX
DT 10-AUG-2001 (first entry)
XX
DE Drosophila melanogaster chloride channel (dmCLC) DNA.
XX
KW Chloride channel; dmCLC; metazoan invertebrate; biopesticide;
KW therapeutic; ds.
XX
OS Drosophila melanogaster.
XX
FH Key   Location/Qualifiers
FT CDS   1..2622
FT   /*tag= a
FT   /product= "Chloride channel (dmCLC) protein"
XX
PN WO200138359-A2.
XX
PD 31-MAY-2001.
XX
PF 29-NOV-2000; 2000WO-US32816.
XX
PR 29-NOV-1999; 99US-0167807.
PR 31-JAN-2000; 2000US-0179167.
PR 01-MAR-2000; 2000US-0186561.
PR 22-MAR-2000; 2000US-0190968.
PR 22-MAR-2000; 2000US-0191400.
XX
PA (GENO-) GENOPTERA LLC.

XX
PI Ebens AJ, Francis-Lang H, Keegan KP, Stout TJ, Kellerman KA;
PI Torpey J;
XX
DR WPI; 2001-355882/37.
DR P-PSDB; AAE02339.
XX
PT Invertebrate receptor nucleic acids isolated from Drosophila
PT melanogaster which can be used to genetically modify metazoan
PT invertebrate organisms resulting in expression or mis-expression of the
PT receptor protein -
XX
PS Claim 4; Page 69-70; 76pp; English.
XX
CC The patent discloses invertebrate receptor nucleic acids and
CC proteins isolated from Drosophila melanogaster. The sequences
CC of the present invention are used to genetically modify metazoan
CC invertebrate organisms such as insects and worms, resulting in the
CC expression or mis-expression of the receptor protein. The nucleic
CC acid molecules of the invention are used as hybridisation probes, in
CC expression vectors and to modify a host cell or animal and therefore
CC provide new means of providing biopesticides. The genetically modified
CC organisms are used in screening assays to identify compounds that are
CC potential pesticidal agents or therapeutics that interact with the
CC receptor proteins.
CC The present sequence is a DNA encoding Drosophila melanogaster
CC chloride channel (dmCLC) protein.
XX
SQ Sequence 3366 BP; 880 A; 743 C; 843 G; 900 T; 0 other;

Query Match 21.8%; Score 789.6; DB 22; Length 3366;
Best Local Similarity 60.9%; Pred. No. 2.9e-112;
Matches 1357; Conservative 0; Mismatches 859; Indels 12; Gaps 4;

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Qy    325 GTACATATGATGATTTCCATACTATTGATTGGGTGCGAGAAAAATGTAAAGACAGAGAAA 384
          | || || || ||||| || || |||||||||  ||| || |        ||  |
Db    425 GGACGTACGAAGATTTTCACACCATTGATTGGCAGCGGGACATTGCCCGTGATCGGATGC 484

Qy    385 GGCATAGACGGATCAACAGCAAAAAGAAAGAATCAGCATGGGAAATGACAAAAAGTTTGT 444
          | ||| |    ||   ||  ||     | || ||    ||||| ||| ||| |||
Db    485 GACATCGCTACATAGTCAAGAAGCGACAGGACTCCTTGTGGGATCTGATAAAGGGTTCCA 544

Qy    445 ATGATGCGTGGTCAGGATGGCTAGTAGTAACACTAACAGGATTGGCATCAGGGGCACTGG 504
          ||||||  | || || ||||||   ||   |||    ||| | ||  ||||     |||
Db    545 TTGATGCCGGATCTGGCTGGCTATGTGTTTTACTCGTCGGAATTGCCGCAGGCTGTGTGG 604

Qy    505 CCGGATTAATAGACATTGCTGCCGATTGGATGACTGACCTAAAGGAGGGCATTTGCCTTA 564
          | ||  |  | |||||||  ||   ||||||| | || |||||| | ||||||||  |
Db    605 CGGGCATGGTGGACATTGGAGCTAGTTGGATGTCGGATCTAAAGCATGGCATTTGTCCAC 664

Qy    565 GTGCGTTGTGGTACAACCACGAACAGTGCTGTTGGGGATCTAATGAAACAACATTTGAAG 624
            || || ||||  |||   ||||| ||||| |       | ||  |  ||  |||||||||
Db    665 CCGCCTTTTGGTTTAACAGGGAACAATGCTGCTATCCGGCCAAACAGTCAGTATTTGAAG 724

Qy    625 AGAGGGATAAATGTCCACAGTGGAAAACATGGGCAGAATTAATCATAGGTCAAGCAGAGG 684
          |    |  || || |   |||||||||| ||| ||||  |  |          |  | | |
Db    725 A---AGGCAACTGCTCGACGTGGAAAACCTGGCCAGAGATCTTTGGTTTGGATCGAAATG 781

Qy    685 GTCCTGGTTCTTATATCATGAACTACATAATGTACATCTTCTGGGCCTTGAGTTTTGCCT 744
          |  | ||  | |||||| |    |||||   |||  |  | ||||| |||  |||||| |
Db    782 GCACCGGACCATATATCGTCGCTTACATCTGGTATGTGCTGTGGGCTTTGCTTTTTGCTT 841

Qy    745 TTCTTGCAGTTTCCCTGGTAAAGGTATTTGCTCCATATGCCTGTGGCTCTGGAATTCCAG 804
            ||    |  ||||| ||     | ||||| || || ||||| || ||||| ||||| |
Db    842 CGCTCAGCGCCTCCCTTGTGCGAATGTTTGCGCCCTACGCCTGCGGATCTGGTATTCCCG 901

Qy    805 AGATTAAAACTATTTTAAGTGGATTCATCATCAGAGGTTACTTGGGAAAATGGACTTTAA 864
          |||| || || || ||   ||| ||||| ||  | || ||  | ||||| |||||  |
Db    902 AGATAAAGACCATCTTGTCTGGCTTCATTATACGCGGCTATCTAGGAAAGTGGACGCTGC 961

Qy    865 TGATTAAAACCATCACATTAGTCCTGGCTGTGGCATCAGGTTTGAGTTTAGGAAAAGAAG 924
          |||| ||| |  |     |  | ||| ||||  |  | ||  | | ||| || || ||||
Db    962 TGATCAAATCGGTGGGTCTGATGCTGTCTGTATCCGCTGGCCTCACTTTGGGCAAGGAAG 1021

Qy    925 GTCCCCTGGTACATGTTGCCTGTTGCTGCGGAAATATCTTTTCCTACCTCTTTCCAAAGT 984
          | ||| |||| ||  ||||| ||||    ||||| || || ||  |  | || |||||  |
Db   1022 GACCCATGGTCCACATTGCCAGTTGTATTGGAAACATATTCTCACATGTTTTCCCAAAAT 1081

Qy    985 ATAGCACAAACGAAGCTAAAAAAAGGGAGGTGCTATCAGCTGCCTCAGCTGCAGGGGTTT 1044
          || |   ||| || || || ||  | ||| | || || || ||  |||| ||||| || |
Db   1082 ATGGTCGAAATGAGGCCAAGAAGCGTGAGATTCTTTCGGCAGCAGCAGCGGCAGGCGTCT 1141

Qy   1045 CTGTAGCTTTTGGTGCACCAATTGGAGGAGTTCTTTTTAGCCTGGAAGAGGTTAGCTATT 1104
          | || || || || |||||||| || |||||||| |||   ||||| || ||    || |
Db   1142 CGGTGGCCTTCGGAGCACCAATCGGTGGAGTTCTCTTTTCGCTGGAGGAAGTGTCATACT 1201

Qy   1105 ATTTTCCTCTCAAAACTTTATGGAGATCATTTTTTGCTGCTTTAGTGGCTGCATTTGTTT 1164
          |||||||  | || || || ||| | ||||| |||  ||| ||  | || ||||| ||||
Db   1202 ATTTTCCATTGAAGACATTGTGGCGTTCATTCTTTTGTGCATTGATTGCCGCATTCGTTT 1261

Qy   1165 TGAGGTCCATCAATCCATTTGGTAACAGCCGTCTGGTCCTTTTTTATGTGGAGTATCATA 1224
          |  | ||  | |  || ||||| |||   | |   || || ||||  ||||||||| | |
Db   1262 TACGATCACTGACGCCGTTTGGCAACGAGCATTCCGTGCTCTTTTTCGTGGAGTATAACA 1321

Qy   1225 CACCATGGTACCTTTTTGAACTGTTTCCTTTTATTCTTCTAGGGGTATTTGGAGGGCTTT 1284
            || |||  | |||| |||||  |||||||| || | || ||  |  | || ||  ||
Db   1322 AGCCCTGGATCTTTTTCGAACTTATTCCTTTTGTTTTCCTCGGAATTATGGGGGGTGTTA 1381

Qy   1285 GGGGAGCCTTTTTCATTAGGGCAAATATTGCCTGGTGTCGTCGACGCAAGTCCACGAAAT 1344
            ||  | || ||||| | ||| ||| |    ||||| ||      | |||| ||  ||
Db   1382 TTGGCACATTCTTCATCAAGGCCAATTTGTGGTGGTGCCGCTACAGGAAGTTCAGCAAGC 1441

Qy   1345 TTGGAAAGTATCCCGTTCTGGAAGTCATTATTGTTGCAGCCATTACTGCTGTGATAGCCT 1404
          | ||| |||||||  ||  |||||||  |  | ||| |     | |||||  | ||   ||
Db   1442 TCGGACAGTATCCAGTAATGGAAGTGCTCTTCGTTACCCTGGTCACTGCCATCATTTGCT 1501

Qy   1405 TCCCTAATCCATACACTAGGCTAAACACCAGTGAACTGATCAAAGAGCTTTTTACAGACT 1464
            ||| |||||||  ||  |  | ||||  |  || || ||        |  |||   | |
Db   1502 ACCCCAATCCATTTACCCGAATGAACATGAACGAGCTAATATTCCTATTGGTTAGCAAGT 1561

Qy   1465 GTGGTCCCCTGGAATCCTCTTCTCTTTGTGACTACAGAAATGACATGAATGCCAGTAAAA 1524
          |    |||  ||  | |  ||  |      |    ||  ||||||  ||
Db   1562 GCTCACCCGGAGATGTCACCAATCCGTTATGTGATTACAAGCGCATGAACATCACGTCGG 1621

Qy   1525 TTGTCGATGACATTCCTGATCGTCCAGCAGGCATTGGAGTATATTCAGCTATATGGCAGT 1584
            |  | ||||  | |      |||| ||| || ||     | || |||| |
Db   1622 GCAACAGTTTCATTGAAGTTACGGAGCCAGGTCCTGGTGTGTACAGCTCCATTTGGCTGC 1681

Qy   1585 TATGCCTGGCACTCATATTTAAAATCATAATGACAGTATTCACTTTTGGCATCAAGGTTC 1644
          |    ||  |  | ||| ||||| |     ||||  | ||||| |||||||| || || |
Db   1682 TTATGCTCACCTTTATACTTAAACTGGCCCTGACCATCTTCACGTTTGGCATGAAAGTGC 1741

Qy   1645 CATCAGGCTTGTTCATCCCCAGCATGGCCATTGGAGCGATCGCAGGAAGGATTGTGGGGA 1704
          |  | ||  |||| || ||   | ||  | |||| || |||   ||  | ||||| || |
Db   1742 CCGCTGGTCTGTTTATTCCGTCCCTGCTCCTTGGCGCCATCATGGGTCGCATTGTTGGAA 1801

Qy   1705 TTGCGGTGGAGCAGCTTGCCTACTATCACCACGACTGGTTTATCTTTAAGGAGTGGTGTG 1764
          | |  |||||||| ||||||||     | | | |     |  ||||||  |    |||||
Db   1802 TCGGTGTGGAGCAGTTTGCCTACAGCTATCCCAATATTTGGTTCTTTACCGGTGAGTGTG 1861

Qy   1765 AGGTCGGGGCTGATTGCATTACACCTGGCCTTTATGCCATGGTTGGTGCTGCTGCATGCT 1824
            || | |    ||  || ||||| || || |||||  | || || || || ||
Db   1862 CGGACAG---CAATCTTATCACACCCGGACTGTATGCGGTTGTGGGAGCAGCAGCTGTGC 1918

Qy   1825 TAGGTGGTGTGACAAGAATGACTGTCTCCCTGGTGGTTATTGTTTTTGAGCTTACTGGAG 1884
          | || ||||| ||  ||||||| |||||||||||| || ||  | || ||||| || || |
Db   1919 TGGGAGGTGTCACTCGAATGACCGTCTCCCTGGTAGTGATAATGTTCGAGCTAACAGGCG 1978

Qy   1885 GCTTGGAATATATTGTTCCCCTTATGGCTGCAGTCATGACCAGTAAATGGGTTGGAGATG 1944
          |  ||   |||||||| ||||| |||||||| | |||| ||   || ||||| || ||||
Db   1979 GAGTGCGGTATATTGTGCCCCTGATGGCTGCCGCCATGGCCTCCAAGTGGGTGGGTGATG 2038

Qy   1945 CCTTTGGCAGGGAAGGCATTTATGAAGCACACATCCGATTAAATGGATACCCTTTCTTGG 2004
          |  | |||||| |||| || || || ||||     | ||||| || || ||| | |
Db   2039 CTCTGGGCAGGCAAGGTATCTACGATGCGCACATTGCGCTGAATGGTTATCCGTTCCTAG 2098
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Qy   2005 ATGCAAAAGAAGAATTCACTCATACCACCCTGGCTGCTGACGTTATGAGACCTCGAAGGA 2064
          |    ||||||||| ||  | ||||| || ||||| || || || |||  |||     |||
Db   2099 ACAGCAAAGAAGAGTTTGCGCATACAACACTGGCCGCAGATGTGATGCAACCAAAGCGGA 2158

Qy   2065 ATGATCCTCCCTTAGCTGTCCTGACACAGGACAATATGACAGTGGATGATATAGAAAACA 2124
          ||||  ||   ||   |||| | || || |||   ||||| ||||| ||| | || |||
Db   2159 ATGAAACT---TTGAATGTCATTACCCAAGACTCCATGACGGTGGACGATGTTGAGAACC 2215

Qy   2125 TGATTAATGAAACCAGCTACAATGGATTTCCTGTCATAATGTCAAAAGAATCTCAGAGAT 2184
          |  |||| |||||     ||||||| | ||| ||  |  ||||    ||   |||    |
Db   2216 TTCTTAAGGAAACGGAACACAATGGCTATCCGGTGGTGGTGTCGCGGGAGAATCAATATT 2275

Qy   2185 TAGTGGGATTTGCCCTCAGAAGAGACCTGACAATTGCAATAGAAAGTGCCAGGAAAAAAC 2244
          ||||||| ||||   |  | || || || |   | || ||||  | ||||| |     |
Db   2276 TAGTGGGCTTTGTATTGCGCAGGGATCTTAACTTGGCCATAGGCAATGCCAAGCGTCTAA 2335

Qy   2245 AAGAAGGTATCGTTGGCAGTTCTCGGGTGTGTTTTGCACAGCACACCCCATCTCTTCCAG 2304
            || || ||     |||| ||    || |  ||  ||       |||   || ||| |
Db   2336 TCGAGGGCATTAGCAGCAGCTCCATAGTATTATTCACA---TCATCCCAGCCTATTCAAA 2392

Qy   2305 CAGAAAGTCCTCGGCCATTGAAGCTTCGAAGCATTCTTGACATGAGCCCTTTTACAGTGA 2364
               | || | |||  |||||||   ||  || || || |||   ||  | ||||| |
Db   2393 ATCTGGGACCCCAGCCGCTGAAGCTGAAAAAGATCCTGGATATGGCACCGATCACAGTTA 2452

Qy   2365 CAGACCACACCCCAATGGAGATTGTGGTGGATATTTTCCGAAAGCTGGGACTGAGGCAGT 2424
          |||| || || ||||||||||  || ||||| || ||||||||||||||||||  | ||
Db   2453 CAGATCAAACGCCAATGGAGACGGTAGTGGACATGTTCCGAAAGCTGGGACTGCGCCAAA 2512

Qy   2425 GCCTTGTAACTCACAATGGGCGCCTCCTTGGCATTATAACAAAAAAAGATATCCTCCGGC 2484
             | ||||| ||||| || ||||| || ||| | || ||||| |||||| | || || |
Db   2513 CATTGGTAACACACAACGGTCGCCTACTGGGCGTAATTACAAAGAAAGATGTGCTGCGCC 2572

Qy   2485 ATATGGCCCAGACGGCAAACCAAGACCCCGCTTCAATAATGTTCAACTGAATCTCACAGA 2544
          || ||   |||| ||  ||| |||| ||| | |  |  | ||||||||||| |  |||
Db   2573 ATGTGAAGCAGATGGATAACGAAGATCCCAATACGGTGCTCTTCAACTGAATTTATCAGC 2632

Qy   2545 TGAGGAGA 2552
             |  |||
Db   2633 CAATCAGA 2640
```

RESULT 10
AAC95405
ID AAC95405 standard; cDNA; 2191 BP.
XX
AC AAC95405;
XX
DT 19-FEB-2001 (first entry)
XX
DE Cat flea HMT VG Cl channel-like partial cDNA, SEQ ID NO:1908.
XX
KW Cat flea; hindgut and Malpighian tubule nucleic acid; HMT;
KW flea infestation; vaccine; antiparasitic; therapeutic target;
KW diagnosis; detection; ss.
XX
OS Ctenocephalides felis.
XX
PN WO200061621-A2.
XX
PD 19-OCT-2000.
XX
PF 07-APR-2000; 2000WO-US09437.
XX
PR 09-APR-1999; 99US-0128704.
XX
PA (HESK-) HESKA CORP.
XX
PI Brandt KS, Gaines PJ, Stinchcomb DT, Wisnewski N;
XX
DR WPI; 2000-656323/63.
XX
PT Flea Malpighian tubule and head and nerve cord tissue derived nucleic
PT acids useful for the prevention, diagnosis and treatment of flea
PT infestations -
XX
PS Claim 1; Page 928-929; 964pp; English.
XX
CC The invention relates to novel cat flea (Ctenocephalides felis) nucleic
CC acids which are expressed in hindgut and Malpighian tubule (HMT) tissue
CC or head and nerve cord (HNC) tissue. The invention also relates to the
CC encoded proteins. The invention additionally encompasses expression
CC constructs, recombinant viruses and recombinant cells comprising the
CC nucleic acids of the invention, recombinant production of the proteins,
CC antibodies against the proteins, a method of identifying inhibitors of
CC the proteins, and compositions comprising the inhibitors for
CC administration to an animal. The nucleic acids, and the proteins they
CC encode may be used in the prevention, treatment and diagnosis of diseases
CC associated with flea infestations. For example, the nucleic acids may be
CC used to produce an HMT or HNC protein according to standard recombinant
CC DNA methodology by inserting the nucleic acids into a host cell and
CC culturing the cell to express the protein. The HMT and HNC nucleic acids
CC may also be used as DNA probes in diagnostic assays (e.g., PCR) to detect
CC and quantitate the presence of cat flea or other homologous nucleic acid
CC sequences in samples. They may also be used to study the expression and
CC function of the proteins and their role in metabolism. The HMT and HNC
CC proteins may be used as antigens in the production of specific
CC antibodies, and in assays to identify modulators (agonists and
CC antagonists) of HMT and/or HNC protein expression and activity. The
CC anti-HMT/HNC protein antibodies and antagonists may also be used to
CC downregulate protein expression and activity. The antibodies may also be
CC used as diagnostic agents for detecting the presence of flea polypeptides
CC in samples (e.g., by enzyme linked immunosorbent assay (ELISA)). The
CC present sequence represents a cat flea HMT cDNA of the invention.
XX
SQ Sequence 2191 BP; 661 A; 327 C; 455 G; 748 T; 0 other;

Query Match 20.3%; Score 736.4; DB 21; Length 2191;
Best Local Similarity 64.0%; Pred. No. 4e-104;
Matches 1163; Conservative 0; Mismatches 641; Indels 12; Gaps 3;

```
Qy    735 AGTTTTGCCTTTCTTGCAGTTTCCCTGGTAAAGGTATTTGCTCCATATGCCTGTGGCTCT 794
          | |||||| | | | ||||  ||  ||||      | ||||| || ||||| ||||| ||
Db      1 ATTTTTGCTTCTTTGGCAGCCTCTTTGGTGCGCATGTTTGCACCTTATGCTTGTGGGTCA 60

Qy    795 GGAATTCCAGAGATTAAAACTATTTTAAGTGGATTCATCATCAGAGGTTACTTGGGAAAA 854
          || || |||||||||||||| ||| | ||||| |||||||||||||| ||  | ||||||
Db     61 GGTATACCAGAGATTAAAACCATTCTGAGTGGTTTCATCATCAGAGGATATCTTGGAAAA 120

Qy    855 TGGACTTTAATGATTAAAACCATCACATTAGTCCTGGCTGTGGCATCAGGTTTGAGTTTA 914
          ||||| || || ||||||| |  | |  |  || ||||  || | || ||||||||
Db    121 TGGACATTGATTATTAAAAGTGTAGGAATCATGTTGTCTGTATCAGCTGGATTGAGTTTG 180

Qy    915 GGAAAAGAAGGTCCCCTGGTACATGTTGCCTGTTGCTGCGGAAATATCTTTTCCTACCTC 974
          || |||||||||||  |||||||  |||||  | ||    || ||||| || || ||  |
Db    181 GGTAAAGAAGGTCCTATGGTACACATTGCCAGCTGTATAGGTAATATATTGTCTTATTTA 240

Qy    975 TTTCCAAAGTATAGCACAAACGAAGCTAAAAAAAGGGAGGTGCTATCAGCTGCCTCAGCT 1034
          ||||| || ||| |    || ||||| || ||| | ||| |  |||||||| ||  ||||
Db    241 TTTCCTAAATATGGTCGGAATGAAGCAAAGAAACGAGAGATTTTATCAGCAGCTGCAGCA 300

Qy   1035 GCAGGGGTTTCTGTAGCTTTTGGTGCACCAATTGGAGGAGTTCTTTTTAGCCTGGAAGAG 1094
          || || || ||||| || ||||| ||||| |||||||| || ||||| ||  |||||||
Db    301 GCTGGTGTATCTGTTGCATTTGGAGCACCTATTGGAGGTGTGCTTTTCAGTTTGGAAGAG 360

Qy   1095 GTTAGCTATTATTTTCCTCTCAAAACTTTATGGAGATCATTTTTTGCTGCTTTAGTGGCT 1154
          || ||||| ||||| ||  | || || ||||||||||||||| ||   ||||||  | ||
Db    361 GTGAGCTACTATTTCCCATTGAAGACCTTATGGAGATCATTCTTCTGTGCTTTGATAGCA 420

Qy   1155 GCATTTGTTTTGAGGTCCATCAATCCATTTGGTAACAGCCGTCTGGTCCTTTTTTATGTG 1214
          || ||  | ||| | ||||| |||||||||| ||    |     |||||||| ||||||
Db    421 GCTTTCATATTGCGATCCATAAATCCATTTGGAAATGAGCACTCTGTCCTTTTCTATGTG 480

Qy   1215 GAGTATCATACACCATGGTACCTTTTTGAACTGTTTCCTTTTATTCTTCTAGGGGTATTT 1274
          || ||  ||| ||| |||    |||||||||| | ||||| ||    || ||  || ||
Db    481 GAATACAATAAACCTTGGATATTTTTTGAACTGATACCTTTCATAGGCCTTGGAATAATT 540
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Qy   1275 GGAGGGCTTTGGGGAGCCTTTTTCATTAGGGCAAATATTGCCTGGTGTCGTCGACGCAAG 1334
Db    541 GGTGGTGTTGTAGCAACGCTGTTTATAAAAGCTAATTTGTACTGGTGTCGCTACCGTAAA 600

Qy   1335 TCCACGAAATTTGGAAAGTATCCCGTTCTGGAAGTCATTATTGTTGCAGCCATTACTGCT 1394
Db    601 TTTTCTAAACTAGGACAGTACCCCGTTGCAGAAGTTTTAGTTGTTGCTGTTGCAACAGCA 660

Qy   1395 GTGATAGCCTTCCCTAATCCATACACTAGGCTAAACACCAGTGAACTGATCAAAGAGCTT 1454
Db    661 GTGATTGCTTATCCTAATCCTTACACCAGGATGAATACTAGTCAACTGATTTATTTACTA 720

Qy   1455 TTTACAGACTGTGGTCCCCTGGAATCCTCTTCTCTTTGTGACTACAGAAATGACATGAAT 1514
Db    721 TTCAGCCAATGCGGGATTTCCAATTCTGATCCTTTGTGTGATTACAATCGCAATTTCACT 780

Qy   1515 GCCAGTAAAATTGTCGATGACATTCCTGATCGTCCAGCAGGCATTGGAGTATATTCAGCT 1574
Db    781 GATGTTAAATCAGCTATAGAAATAGCAG------CAGCTGGTCCTGGTGTCTACCAGGCT 834

Qy   1575 ATATGGCAGTTATGCCTGGCACTCATATTTAAAATCATAATGACAGTATTCACTTTTGGC 1634
Db    835 GTGTGGTTGCTCCTGATTGCTTTGGTACTGAAATTGGGAATGACTGTATTTACCTTTGGT 894

Qy   1635 ATCAAGGTTCCATCAGGCTTGTTCATCCCCAGCATGGCCATTGGAGCGATCGCAGGAAGG 1694
Db    895 ATGAAAGTACCATGTGGTCTGTTTATCCCAAGTTTATGCCTAGGAGCTATTATGGGTAGA 954

Qy   1695 ATTGTGGGGATTGCGGTGGAGCAGCTTGCCTACTATCACCACGACTGGTTTATCTTTAAG 1754
Db    955 ATTGTGGGCATTGGAATTGAACAATTGGCTTACTATTATCCAAAATTATGGTTCTTTTCT 1014

Qy   1755 GAGTGGTGTGAGGTCGGGGCTGATTGCATTACACCTGGCCTTTATGCCATGGTTGGTGCT 1814
Db   1015 GGTGAATGCTCAACTGGAGACAATTGCATCACACCGGGCCTGTATGCTATGGTGGGCGCT 1074

Qy   1815 GCTGCATGCTTAGGTGGTGTGACAAGAATGACTGTCTCCCTGGTGGTTATTGTTTTTGAG 1874
Db   1075 GCAGCTGTTTTAGGTGGTGTCACTAGAATGACAGTTTCTCTGGTGGTAATAATGTTTGAA 1134

Qy   1875 CTTACTGGAGGCTTGGAATATATTGTTCCCCTTATGGCTGCAGTCATGACCAGTAAATGG 1934
Db   1135 CTGACTGGTGGTGTACGTTATATCGTGCCCTTAATGGCAGCAGCTATGGCTTCCAAATGG 1194

Qy   1935 GTTGGAGATGCCTTTGGCAGGGAAGGCATTTATGAAGCACACATCCGATTAAATGGATAC 1994
Db   1195 GTTGGTGATGCTTTGGGCAGACAGGGTATATATGATGCCCATATACAGCTTAATGGATAT 1254

Qy   1995 CCTTTCTTGGATGCAAAAGAAGAATTCACTCATACCACCCTGGCTGCTGACGTTATGAGA 2054
Db   1255 CCATTCTTGGACAGTAAAGATGAATTTGCACATACATCTTTAGCTGCAGATGTCATGCAA 1314

Qy   2055 CCTCGAAGGAATGATCCTCCCTTAGCTGTCCTGACACAGGACAATATGACAGTGGATGAT 2114
Db   1315 CCCAAGAGGAATGA---AACATTAAGTGTAATCACTCAAGACTCGATGACTGTGGATGAT 1371

Qy   2115 ATAGAAAACATGATTAATGAAACCAGCTACAATGGATTTCCTGTCATAATGTCAAAAGAA 2174
Db   1372 GTTGAAGGTTTACTGAAAGAAACTGAGCACAATGGATATCCAGTTGTTGTTTCCAGAGAA 1431

Qy   2175 TCTCAGAGATTAGTGGGATTTGCCCTCAGAAGAGACCTGACAATTGCAATAGAAAGTGCC 2234
Db   1432 TCTCAGTATCTTGTTGGATTTGTTTTGAGGAGGGACTTAAATCTAGCCATAGCCAATGCT 1491

Qy   2235 AGGAAAAAACAAGAAGGTATCGTTGGCAGTTCTCGGGTGTGTTTTGCACAGCACACCCCA 2294
Db   1492 AGACGCATGATCGATGGGATAACAGGACAAAGTTTGGTACTTTTCATA---AATGGCCCT 1548

Qy   2295 TCTCTTCCAGCAGAAAGTCCTCGGCCATTGAAGCTTCGAAGCATTCTTGACATGAGCCCT 2354
Db   1549 ACAGTGCAAAGTTTAGGACCTCCACCTTTGAAACTAAAGAAAATATTAGATATGGCTCCA 1608

Qy   2355 TTTACAGTGACAGACCACACCCCAATGGAGATTGTGGTGGATATTTTCCGAAAGCTGGGA 2414
Db   1609 ATAACAGTGACTGATCAAACACCAATGGAAACTGTGGTGGATATGTTTAGAAAACTAGGT 1668

Qy   2415 CTGAGGCAGTGCCTTGTAACTCACAATGGGCGCCTCCTTGGCATTATAACAAAAAAAGAT 2474
Db   1669 TTACGTCAGACATTAGTCACACACAATGGGCGTTTGCTCGGTGTTATAACTAAAAAAGAT 1728

Qy   2475 ATCCTCCGGCATATGGCCCAGACGGCAAACCAAGACCCCGCTTCAATAATGTTCAACTGA 2534
Db   1729 GTTTTACGACATGTAAAACAAATGGATAATGAAGATCCTAATAGTATACTTTTTAATTAA 1788

Qy   2535 ATCTCACAGATGAGGA 2550
Db   1789 TATTTACATATATGTA 1804
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RESULT 11
AAC95406/c
ID   AAC95406 standard; cDNA; 2191 BP.
XX
AC   AAC95406;
XX
DT   19-FEB-2001  (first entry)
XX
DE   Cat flea HMT VG Cl channel-like cDNA complement, SEQ ID NO:1909.
XX
KW   Cat flea; hindgut and Malpighian tubule nucleic acid; HMT;
KW   flea infestation; vaccine; antiparasitic; therapeutic target;
KW   diagnosis; detection; ss.
XX
OS   Ctenocephalides felis.
XX
PN   WO200061621-A2.
XX
PD   19-OCT-2000.
XX
PF   07-APR-2000; 2000WO-US09437.
XX
PR   09-APR-1999;   99US-0128704.
XX
PA   (HESK-) HESKA CORP.
XX
PI   Brandt KS,  Gaines PJ,  Stinchcomb DT,  Wisnewski N;
XX
DR   WPI; 2000-656323/63.
XX
PT   Flea Malpighian tubule and head and nerve cord tissue derived nucleic
PT   acids useful for the prevention, diagnosis and treatment of flea
PT   infestations -
XX
PS   Claim 1; Page 929-930; 964pp; English.
XX
CC   The invention relates to novel cat flea (Ctenocephalides felis) nucleic
CC   acids which are expressed in hindgut and Malpighian tubule (HMT) tissue
CC   or head and nerve cord (HNC) tissue. The invention also relates to the
CC   encoded proteins. The invention additionally encompasses expression
CC   constructs, recombinant viruses and recombinant cells comprising the
CC   nucleic acids of the invention, recombinant production of the proteins,
CC   antibodies against the proteins, a method of identifying inhibitors of
CC   the proteins, and compositions comprising the inhibitors for
CC   administration to an animal. The nucleic acids, and the proteins they
CC   encode may be used in the prevention, treatment and diagnosis of diseases
CC   associated with flea infestations. For example, the nucleic acids may be
CC   used to produce an HMT or HNC protein according to standard recombinant
CC   DNA methodology by inserting the nucleic acids into a host cell and
CC   culturing the cell to express the protein. The HMT and HNC nucleic acids
CC   may also be used as DNA probes in diagnostic assays (e.g., PCR) to detect
CC   and quantitate the presence of cat flea or other homologous nucleic acid
CC   sequences in samples. They may also be used to study the expression and
CC   function of the proteins and their role in metabolism. The HMT and HNC
CC   proteins may be used as antigens in the production of specific
CC   antibodies, and in assays to identify modulators (agonists and
CC   antagonists) of HMT and/or HNC protein expression and activity. The
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CC anti-HMT/HNC protein antibodies and antagonists may also be used to
CC downregulate protein expression and activity. The antibodies may also be
CC used as diagnostic agents for detecting the presence of flea polypeptides
CC in samples (e.g., by enzyme linked immunosorbent assay (ELISA)). The
CC present sequence represents a cat flea HMT cDNA of the invention.
XX
SQ Sequence 2191 BP; 748 A; 455 C; 327 G; 661 T; 0 other;

Query Match 20.3%; Score 736.4; DB 21; Length 2191;
Best Local Similarity 64.0%; Pred. No. 4e-104;
Matches 1163; Conservative 0; Mismatches 641; Indels 12; Gaps 3;

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Qy    735 AGTTTTGCCTTTCTTGCAGTTTCCCTGGTAAAGGTATTTGCTCCATATGCCTGTGGCTCT 794
Db   2191 ATTTTTGCTTCTTTGGCAGCCTCTTTGGTGCGCATGTTTGCACCTTATGCTTGTGGGTCA 2132

Qy    795 GGAATTCCAGAGATTAAAACTATTTTAAGTGGATTCATCATCAGAGGTTACTTGGGAAAA 854
Db   2131 GGTATACCAGAGATTAAAACCATTCTGAGTGGTTTCATCATCAGAGGATATCTTGGAAAA 2072

Qy    855 TGGACTTTAATGATTAAAACCATCACATTAGTCCTGGCTGTGGCATCAGGTTTGAGTTTA 914
Db   2071 TGGACATTGATTATTAAAAGTGTAGGAATCATGTTGTCTGTATCAGCTGGATTGAGTTTG 2012

Qy    915 GGAAAAGAAGGTCCCCTGGTACATGTTGCCTGTTGCTGCGGAAATATCTTTTCCTACCTC 974
Db   2011 GGTAAAGAAGGTCCTATGGTACACATTGCCAGCTGTATAGGTAATATATTGTCTTATTTA 1952

Qy    975 TTTCCAAAGTATAGCACAAACGAAGCTAAAAAAAGGGAGGTGCTATCAGCTGCCTCAGCT 1034
Db   1951 TTTCCTAAATATGGTCGGAATGAAGCAAAGAAACGAGAGATTTTATCAGCAGCTGCAGCA 1892

Qy   1035 GCAGGGGTTTCTGTAGCTTTTGGTGCACCAATTGGAGGAGTTCTTTTTAGCCTGGAAGAG 1094
Db   1891 GCTGGTGTATCTGTTGCATTTGGAGCACCTATTGGAGGTGTGCTTTTCAGTTTGGAAGAG 1832

Qy   1095 GTTAGCTATTATTTTCCTCTCAAAACTTTATGGAGATCATTTTTTGCTGCTTTAGTGGCT 1154
Db   1831 GTGAGCTACTATTTCCCATTGAAGACCTTATGGAGATCATTCTTCTGTGCTTTGATAGCA 1772

Qy   1155 GCATTTGTTTTGAGGTCCATCAATCCATTTGGTAACAGCCGTCTGGTCCTTTTTTATGTG 1214
Db   1771 GCTTTCATATTGCGATCCATAAATCCATTTGGAAATGAGCACTCTGTCCTTTTCTATGTG 1712

Qy   1215 GAGTATCATACACCATGGTACCTTTTTGAACTGTTTCCTTTTATTCTTCTAGGGGTATTT 1274
Db   1711 GAATACAATAAACCTTGGATATTTTTTGAACTGATACCTTTCATAGGCCTTGGAATAATT 1652

Qy   1275 GGAGGGCTTTGGGGAGCCTTTTTCATTAGGGCAAATATTGCCTGGTGTCGTCGACGCAAG 1334
Db   1651 GGTGGTGTTGTAGCAACGCTGTTTATAAAAGCTAATTTGTACTGGTGTCGCTACCGTAAA 1592

Qy   1335 TCCACGAAATTTGGAAAGTATCCCGTTCTGGAAGTCATTATTGTTGCAGCCATTACTGCT 1394
Db   1591 TTTTCTAAACTAGGACAGTACCCCGTTGCAGAAGTTTTAGTTGTTGCTGTTGCAACAGCA 1532

Qy   1395 GTGATAGCCTTCCCTAATCCATACACTAGGCTAAACACCAGTGAACTGATCAAAGAGCTT 1454
Db   1531 GTGATTGCTTATCCTAATCCTTACACCAGGATGAATACTAGTCAACTGATTTATTTACTA 1472

Qy   1455 TTTACAGACTGTGGTCCCCTGGAATCCTCTTCTCTTTGTGACTACAGAAATGACATGAAT 1514
Db   1471 TTCAGCCAATGCGGGATTTCCAATTCTGATCCTTTGTGTGATTACAATCGCAATTTCACT 1412

Qy   1515 GCCAGTAAAATTGTCGATGACATTCCTGATCGTCCAGCAGGCATTGGAGTATATTCAGCT 1574
Db   1411 GATGTTAAATCAGCTATAGAAATAGCAG------CAGCTGGTCCTGGTGTCTACCAGGCT 1358

Qy   1575 ATATGGCAGTTATGCCTGGCACTCATATTTAAAATCATAATGACAGTATTCACTTTTGGC 1634
Db   1357 GTGTGGTTGCTCCTGATTGCTTTGGTACTGAAATTGGGAATGACTGTATTTACCTTTGGT 1298

Qy   1635 ATCAAGGTTCCATCAGGCTTGTTCATCCCCAGCATGGCCATTGGAGCGATCGCAGGAAGG 1694
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Db   1297 ATGAAAGTACCATGTGGTCTGTTTATCCCAAGTTTATGCCTAGGAGCTATTATGGGTAGA 1238

Qy   1695 ATTGTGGGGATTGCGGTGGAGCAGCTTGCCTACTATCACCACGACTGGTTTATCTTTAAG 1754
Db   1237 ATTGTGGGCATTGGAATTGAACAATTGGCTTACTATTATCCAAAATTATGGTTCTTTTCT 1178

Qy   1755 GAGTGGTGTGAGGTCGGGGCTGATTGCATTACACCTGGCCTTTATGCCATGGTTGGTGCT 1814
Db   1177 GGTGAATGCTCAACTGGAGACAATTGCATCACACCGGGCCTGTATGCTATGGTGGGCGCT 1118

Qy   1815 GCTGCATGCTTAGGTGGTGTGACAAGAATGACTGTCTCCCTGGTGGTTATTGTTTTTGAG 1874
Db   1117 GCAGCTGTTTTAGGTGGTGTCACTAGAATGACAGTTTCTCTGGTGGTAATAATGTTTGAA 1058

Qy   1875 CTTACTGGAGGCTTGGAATATATTGTTCCCCTTATGGCTGCAGTCATGACCAGTAAATGG 1934
Db   1057 CTGACTGGTGGTGTACGTTATATCGTGCCCTTAATGGCAGCAGCTATGGCTTCCAAATGG 998

Qy   1935 GTTGGAGATGCCTTTGGCAGGGAAGGCATTTATGAAGCACACATCCGATTAAATGGATAC 1994
Db    997 GTTGGTGATGCTTTGGGCAGACAGGGTATATATGATGCCCATATACAGCTTAATGGATAT 938

Qy   1995 CCTTTCTTGGATGCAAAAGAAGAATTCACTCATACCACCCTGGCTGCTGACGTTATGAGA 2054
Db    937 CCATTCTTGGACAGTAAAGATGAATTTGCACATACATCTTTAGCTGCAGATGTCATGCAA 878

Qy   2055 CCTCGAAGGAATGATCCTCCCTTAGCTGTCCTGACACAGGACAATATGACAGTGGATGAT 2114
Db    877 CCCAAGAGGAATGA---AACATTAAGTGTAATCACTCAAGACTCGATGACTGTGGATGAT 821

Qy   2115 ATAGAAAACATGATTAATGAAACCAGCTACAATGGATTTCCTGTCATAATGTCAAAAGAA 2174
Db    820 GTTGAAGGTTTACTGAAAGAAACTGAGCACAATGGATATCCAGTTGTTGTTTCCAGAGAA 761

Qy   2175 TCTCAGAGATTAGTGGGATTTGCCCTCAGAAGAGACCTGACAATTGCAATAGAAAGTGCC 2234
Db    760 TCTCAGTATCTTGTTGGATTTGTTTTGAGGAGGGACTTAAATCTAGCCATAGCCAATGCT 701

Qy   2235 AGGAAAAAACAAGAAGGTATCGTTGGCAGTTCTCGGGTGTGTTTTGCACAGCACACCCCA 2294
Db    700 AGACGCATGATCGATGGGATAACAGGACAAAGTTTGGTACTTTTCATA---AATGGCCCT 644

Qy   2295 TCTCTTCCAGCAGAAAGTCCTCGGCCATTGAAGCTTCGAAGCATTCTTGACATGAGCCCT 2354
Db    643 ACAGTGCAAAGTTTAGGACCTCCACCTTTGAAACTAAAGAAAATATTAGATATGGCTCCA 584

Qy   2355 TTTACAGTGACAGACCACACCCCAATGGAGATTGTGGTGGATATTTTCCGAAAGCTGGGA 2414
Db    583 ATAACAGTGACTGATCAAACACCAATGGAAACTGTGGTGGATATGTTTAGAAAACTAGGT 524

Qy   2415 CTGAGGCAGTGCCTTGTAACTCACAATGGGCGCCTCCTTGGCATTATAACAAAAAAAGAT 2474
Db    523 TTACGTCAGACATTAGTCACACACAATGGGCGTTTGCTCGGTGTTATAACTAAAAAAGAT 464

Qy   2475 ATCCTCCGGCATATGGCCCAGACGGCAAACCAAGACCCCGCTTCAATAATGTTCAACTGA 2534
Db    463 GTTTTACGACATGTAAAACAAATGGATAATGAAGATCCTAATAGTATACTTTTTAATTAA 404

Qy   2535 ATCTCACAGATGAGGA 2550
Db    403 TATTTACATATATGTA 388
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RESULT 12
AAS68176
ID AAS68176 standard; cDNA; 4794 BP.
XX
AC AAS68176;
XX
DT 13-FEB-2002 (first entry)
XX
DE DNA encoding novel human diagnostic protein #3980.

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XX
KW   Human; chromosome mapping; gene mapping; gene therapy; forensic;
KW   food supplement; medical imaging; diagnostic; genetic disorder; ss.
XX
OS   Homo sapiens.
XX
PN   WO200175067-A2.
XX
PD   11-OCT-2001.
XX
PF   30-MAR-2001; 2001WO-US08631.
XX
PR   31-MAR-2000; 2000US-0540217.
PR   23-AUG-2000; 2000US-0649167.
XX
PA   (HYSE-) HYSEQ INC.
XX
PI   Drmanac RT,  Liu C,  Tang YT;
XX
DR   WPI; 2001-639362/73.
DR   P-PSDB; ABG03989.
XX
PT   New isolated polynucleotide and encoded polypeptides, useful in
PT   diagnostics, forensics, gene mapping, identification of mutations
PT   responsible for genetic disorders or other traits and to assess
PT   biodiversity -
XX
PS   Claim 1; SEQ ID No 3980; 103pp; English.
XX
CC   The invention relates to isolated polynucleotide (I) and
CC   polypeptide (II) sequences. (I) is useful as hybridisation probes,
CC   polymerase chain reaction (PCR) primers, oligomers, and for chromosome
CC   and gene mapping, and in recombinant production of (II). The
CC   polynucleotides are also used in diagnostics as expressed sequence tags
CC   for identifying expressed genes. (I) is useful in gene therapy techniques
CC   to restore normal activity of (II) or to treat disease states involving
CC   (II). (II) is useful for generating antibodies against it, detecting or
CC   quantitating a polypeptide in tissue, as molecular weight markers and as
CC   a food supplement. (II) and its binding partners are useful in medical
CC   imaging of sites expressing (II). (I) and (II) are useful for treating
CC   disorders involving aberrant protein expression or biological activity.
CC   The polypeptide and polynucleotide sequences have applications in
CC   diagnostics, forensics, gene mapping, identification of mutations
CC   responsible for genetic disorders or other traits to assess biodiversity
CC   and to produce other types of data and products dependent on DNA and
CC   amino acid sequences. AAS64197-AAS94564 represent novel human
CC   diagnostic coding sequences of the invention.
CC   Note: The sequence data for this patent did not appear in the printed
CC   specification, but was obtained in electronic format directly from WIPO
CC   at ftp.wipo.int/pub/published_pct_sequences.
XX
SQ   Sequence 4794 BP; 1655 A; 1089 C; 960 G; 1090 T; 0 other;

  Query Match           19.3%;  Score 701.2;  DB 23;  Length 4794;
  Best Local Similarity  64.2%;  Pred. No. 9.7e-99;
  Matches 1194;  Conservative    0;  Mismatches  483;  Indels  183;  Gaps    2;

Qy     673 GTCAAGCAGAGGGTCCTGGTTCTTATATCATGAACTACATAATGTACATCTTCTGGGCCT 732
           | ||   ||||||  |   | | || ||  | || ||  | |||||| || |||||||
Db    3116 GGCACCGAGAGGGAGCCTTTGCCTACATAGTCAATTATTTCATGTACGTCCTCTGGGCTC 3175

Qy     733 TGAGTTTTGCCTTTCTTGCAGTTTCCCTGGTAAAGGTATTTGCTCCATATGCCTGTGGCT 792
           |    |||||||| |||| || || || || ||||| ||||| || ||||||||||||
Db    3176 TCCTATTTGCCTTCCTTGCCGTATCTCTTGTCAAGGTGTTTGCGCCTTATGCCTGTGGCT 3235

Qy     793 CTGGAATTCCAGAGATTAAAACTATTTTAAGTGGATTCATCATCAGAGGTTACTTGGGAA 852
           ||||||| || |||| |||||||| || ||||| ||||| || || || || ||||| |
Db    3236 CTGGAATCCCTGAGATAAAAACTATCTTGAGTGGTTTCATTATTAGGGGCTATTTGGGTA 3295

Qy     853 AATGGACTTTAATGATTAAAACCATCACATTAGTCCTGGCTGTGGCATCAGGTTTGAGTT 912
           | |||||| |  | || |||||||||| || || |||| ||| | || || ||||
Db    3296 AGTGGACTCTGGTTATCAAAACCATCACCTTGGTGCTGGCAGTGTCGTCTGGCTTGAGCC 3355

Qy     913 TAGGAAAAGAAGGTCCCCTGGTACATGTTGCCTGTTGCTGCGGAAATATCTTTTCCTACC 972
           | || |||| || || || || || || || || |||| || || ||| | | | ||
Db    3356 TGGGCAAAGAGGGCCCTCTAGTGCACGTGGCTTGCTGCTGTGGGAACATCCTGTGCCACT 3415

Qy     973 TCTTTCCAAAGTATAGCACAAACGAAGCTAAAAAAAGGGAGGTGCTATCAGCTGCCTCAG 1032
           |||    || || || |  || |||| ||    || ||||  | || ||||  |||
Db    3416 GCTTCAACAAATACAGGAAGAATGAAGCCAAGCGCAGAGAGGTCTTGTCGGCTGCAGCAG 3475

Qy    1033 CTGCAGGGGTTTCTGTAGCTTTTGGTGCACCAATTGGAGGAGTTCTTTTTAGCCTGGAAG 1092
           | || || || |||||||| |||| |||| || || |||| | || |||| |||| ||||
Db    3476 CAGCTGGTGTATCTGTAGCCTTTGGAGCACCTATAGGTGGAGTATTATTCAGCCTTGAAG 3535

Qy    1093 AGGTTAGCTATTATTTTCCTCTCAAAACTTTATGGAGATCATTTTTTGCTGCTTTAGTGG 1152
           |||| |||| |||||||| |||||||| || ||| | |||| |||||||| || ||||
Db    3536 AGGTCAGCTACTATTTTCCCCTCAAAACATTGTGGCGTTCATTCTTTGCTGCCTTGGTGG 3595

Qy    1153 CTGCATTTGTTTTGAGGTCCATCAATCCATTTGGTAACAGCCGTCTGGTCCTTTTTTATG 1212
           | |||||  | |  | |||||||||||||||| |||||||| ||||| || |||||||
Db    3596 CAGCATTCACTCTACGCTCCATCAATCCATTTGGGAACAGCCGCCTGGTACTATTTTATG 3655

Qy    1213 TGGAGTATCATACACCATGGTACCTTTTTGAACTGTTTCCTTTTATTCTTCTAGGGGTAT 1272
           |||||| ||| || |||||| | || ||||| ||  | || || ||||| || ||  |||
Db    3656 TGGAGTTTCACACCCCATGGCATCTCTTTGAGCTCGTGCCATTCATTCTGCTGGGCATAT 3715

Qy    1273 TTGGAGGGCTTTGGGGAGCCTTTTTCATTAGGGCAAATATTGCCTGGTGTCGTCGACGCA 1332
           |||| || || |||||||| | || || |  |||| ||||||||||||||    || |
Db    3716 TTGGTGGTCTGTGGGGAGCACTGTTTATCCGCACAAACATTGCCTGGTGTCGGAAGCGAA 3775

Qy    1333 AGTCCACGAAATTTGGAAAGTATCCCGTTCTGGAAGTCATTATTGTTGCAGCCATTACTG 1392
           || |||  | || || |||||||| ||| | || ||  |  | ||  ||||||| ||||
Db    3776 AGACCACCCAGTTGGGCAAGTATCCTGTTATAGAGGTACTCGTCGTGACAGCCATCACTG 3835

Qy    1393 CTGTGATAGCCTTCCCTAATCCATACACTAGGCTAAACACCAGTGAACTGATCAAAGAGC 1452
           |  |  | || |||| ||| |||||||| || | | ||| |||| || ||    ||||
Db    3836 CCATCCTGGCTTTCCCCAATGAATACACTCGGATGAGCACAAGTGAGCTCATTTCTGAGC 3895

Qy    1453 TTTTTACAGACTGTGGTCCCCTGGAATCCTCTTCTCTTTGTGACTACAGAAATGACATGA 1512
           | ||||  |||||||| |  |||| ||||    || ||||| ||    ||     | |
Db    3896 TGTTTAATGACTGTGGCCTTCTGGACTCCTCCAAGCTCTGTGATTATGAGAACCGTTTCA 3955

Qy    1513 ATGCCAGTAAAATTGTCGATGACATTCCTGATCGTCCAGCAGGCATTGGAGTATATTCAG 1572
           |  | || |||   |  | |||  | |||||  | || || ||| | ||||| ||    |
Db    3956 ACACAAGCAAA---GGGGGTGAACTGCCTGACAGACCGGCTGGCGTGGGAGTCTACAGTG 4012

Qy    1573 CTATATGGCAGTTATGCCTGGCACTCATATTTAAAATCATAATGACAGTATTCACTTTTG 1632
           | || |||||| |     |  |||||||| | |||||  | || ||  |||||||| |||
Db    4013 CAATGTGGCAGCTGGCTTTAACACTCATACTGAAAATTGTCATTACTATATTCACCTTTG 4072

Qy    1633 GCATCAAGGTTCCATCAGGCTTGTTCATCCCCAGCATGGCCATTGGAGCGATCGCAGGAA 1692
           |||| ||| | || || ||| | || ||||| |||||||  |||| || || |||||
Db    4073 GCATGAAGATCCCTTCTGGCCTCTTTATCCCTAGCATGGCTGTTGGTGCTATAGCAGGTC 4132

Qy    1693 GGATTGTGGGGATTGCGGTGGAGCAGCTTGCCTACTATCACCACGACTGGTTTATCTTTA 1752
           |  || | ||  | |   |||| ||||| || || || ||||| || |||    |||| |
Db    4133 GACTTCTAGGAGTAGGAATGGAACAGCTGGCTTATTACCACCAGGAATGGACCGTCTTCA 4192

Qy    1753 AGGAGTGGTGTGAGGTCGGGGCTGATTGCATTACACCTGGCCTTTATGCCATGGTTGGTG 1812
           |    ||||||      || |||||||||| || || |||||||||| |||||||| |
Db    4193 ATAGCTGGTGTAGTCAGGGAGCTGATTGCATCACCCCCGGCCTTTATGCAATGGTTGGGG 4252

Qy    1813 CTGCTGCATGCTTAGGTGGTGTGACAAGAATGACTGTCTCCCTGGTGGTTATTGTTTTTG 1872
           |||| || ||||||
Db    4253 CTGCAGCCTGCTTA---------------------------------------------- 4266

Qy    1873 AGCTTACTGGAGGCTTGGAATATATTGTTCCCCTTATGGCTGCAGTCATGACCAGTAAAT 1932

Db    4267 ------------------------------------------------------------ 4266

Qy    1933 GGGTTGGAGATGCCTTTGGCAGGGAAGGCATTTATGAAGCACACATCCGATTAAATGGAT 1992

Db    4267 ------------------------------------------------------------ 4266

Qy    1993 ACCCTTTCTTGGATGCAAAAGAAGAATTCACTCATACCACCCTGGCTGCTGACGTTATGA 2052
```

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                    || |||||||| ||  ||||||  ||||||||    || || ||||
Db   4267 -------------GCCAAAGAAGAGTTTGCTCATAAGACCCTGGCAATGGATGTGATGA 4312

Qy   2053 GACCTCGAAGGAATGATCCTCCCTTAGCTGTCCTGACACAGGACAATATGACAGTGGATG 2112
          ||| || || |||||||||   ||  ||||||| || ||||||| ||||||  ||||| |
Db   4313 AACCCCGGAGAAATGATCCTTTGTTGACTGTCCTTACTCAGGACAGTATGACTGTGGAAG 4372

Qy   2113 ATATAGAAAACATGATTAATGAAACCAGCTACAATGGATTTCCTGTCATAATGTCAAAAG 2172
          || |||| | ||| || | ||||||||  |||| ||| || || ||  |  | ||    |
Db   4373 ATGTAGAGACCATAATCAGTGAAACCACTTACAGTGGCTTCCCAGTGGTGGTATCCCGGG 4432

Qy   2173 AATCTCAGAGATTAGTGGGATTTGCCCTCAGAAGAGACCTGACAATTGCAATAGAAAGTG 2232
          | || || ||| | |||| |||| |||| ||||||| || |  ||| |||| |||| ||
Db   4433 AGTCCCAAAGACTTGTGGGCTTTGTCCTCCGAAGAGATCTCATTATTTCAATTGAAAATG 4492

Qy   2233 CCAGGAAAAAACAAGAAGGTATCGTTGGCAGTTCTCGGGTGTGTTTTGCACAGCACACCC 2292
          |  | || |||| || ||  | ||| ||| |||     | | |||  |  ||||  | |
Db   4493 CTCGAAAGAAACAGGATGGGGTTGTTAGCACTTCCATCATTTATTTCACGGAGCATTCTC 4552

Qy   2293 CATCTCTTCCAGCAGAAAGTCCTCGGCCATTGAAGCTTCGAAGCATTCTTGACATGAGCC 2352
          |  |  | ||| || | | ||| |   |  | |||||||| | ||| || ||  | ||||
Db   4553 CTCCATTGCCACCATACACTCCACCCACTCTAAAGCTTCGGAACATCCTCGATCTCAGCC 4612

Qy   2353 CTTTTACAGTGACAGACCACACCCCAATGGAGATTGTGGTGGATATTTTCCGAAAGCTGG 2412
          | || || |||| |||   || || |||||||| || ||||||||||||||||||||||
Db   4613 CCTTCACTGTGACTGACCTTACACCCATGGAGATCGTAGTGGATATTTTCCGAAAGCTGG 4672

Qy   2413 GACTGAGGCAGTGCCTTGTAACTCACAATGGGCGCCTCCTTGGCATTATAACAAAAAAAG 2472
          ||||| |||||||||| || || ||||| |||||  | ||||| || || || ||||| |
Db   4673 GACTGCGGCAGTGCCTGGTTACACACAACGGGCGATTGCTTGGAATCATTACCAAAAAGG 4732

Qy   2473 ATATCCTCCGGCATATGGCCCAGACGGCAAACCAAGACCCCGCTTCAATAATGTTCAACT 2532
          || |  |   |||||| || |||| ||| |||||||| || | ||| ||  | |||||||
Db   4733 ATGTGTTAAAGCATATAGCACAGATGGCGAACCAAGATCCTGATTCCATTCTCTTCAACT 4792


RESULT 13
AAS69658
ID   AAS69658 standard; cDNA; 4794 BP.
XX
AC   AAS69658;
XX
DT   13-FEB-2002  (first entry)
XX
DE   DNA encoding novel human diagnostic protein #5462.
XX
KW   Human; chromosome mapping; gene mapping; gene therapy; forensic;
KW   food supplement; medical imaging; diagnostic; genetic disorder; ss.
XX
OS   Homo sapiens.
XX
PN   WO200175067-A2.
XX
PD   11-OCT-2001.
XX
PF   30-MAR-2001; 2001WO-US08631.
XX
PR   31-MAR-2000; 2000US-0540217.
PR   23-AUG-2000; 2000US-0649167.
XX
PA   (HYSE-) HYSEQ INC.
XX
PI   Drmanac RT,  Liu C,  Tang YT;
XX
DR   WPI; 2001-639362/73.
DR   P-PSDB; ABG05471.
XX
PT   New isolated polynucleotide and encoded polypeptides, useful in
PT   diagnostics, forensics, gene mapping, identification of mutations
PT   responsible for genetic disorders or other traits and to assess
PT   biodiversity  -
XX
PS   Claim 1; SEQ ID No 5462; 103pp; English.
XX
CC   The invention relates to isolated polynucleotide (I) and
CC   polypeptide (II) sequences. (I) is useful as hybridisation probes,
CC   polymerase chain reaction (PCR) primers, oligomers, and for chromosome
CC   and gene mapping, and in recombinant production of (II). The
CC   polynucleotides are also used in diagnostics as expressed sequence tags
CC   for identifying expressed genes. (I) is useful in gene therapy techniques
CC   to restore normal activity of (II) or to treat disease states involving
CC   (II). (II) is useful for generating antibodies against it, detecting or
CC   quantitating a polypeptide in tissue, as molecular weight markers and as
CC   a food supplement. (II) and its binding partners are useful in medical
CC   imaging of sites expressing (II). (I) and (II) are useful for treating
CC   disorders involving aberrant protein expression or biological activity.
CC   The polypeptide and polynucleotide sequences have applications in
CC   diagnostics, forensics, gene mapping, identification of mutations
CC   responsible for genetic disorders or other traits to assess biodiversity
CC   and to produce other types of data and products dependent on DNA and
CC   amino acid sequences. AAS64197-AAS94564 represent novel human
CC   diagnostic coding sequences of the invention.
CC   Note: The sequence data for this patent did not appear in the printed
CC   specification, but was obtained in electronic format directly from WIPO
CC   at ftp.wipo.int/pub/published_pct_sequences.
XX
SQ   Sequence 4794 BP; 1655 A; 1089 C; 960 G; 1090 T; 0 other;

  Query Match             19.3%;  Score 701.2;  DB 23;  Length 4794;
  Best Local Similarity   64.2%;  Pred. No. 9.7e-99;
  Matches 1194;  Conservative    0;  Mismatches  483;  Indels  183;  Gaps    2;

Qy    673 GTCAAGCAGAGGGTCCTGGTTCTTATATCATGAACTACATAATGTACATCTTCTGGGCCT 732
          | ||   ||||||  |   | ||| ||  | || ||  | |||||| || |||||||
Db   3116 GGCACCGAGAGGGAGCCTTTGCCTACATAGTCAATTATTTCATGTACGTCCTCTGGGCTC 3175

Qy    733 TGAGTTTTGCCTTTCTTGCAGTTTCCCTGGTAAAGGTATTTGCTCCATATGCCTGTGGCT 792
          |    |||||||| ||||| || || || || ||||| ||||| |,| ||||||||||||
Db   3176 TCCTATTTGCCTTCCTTGCCGTATCTCTTGTCAAGGTGTTTGCGCCTTATGCCTGTGGCT 3235

Qy    793 CTGGAATTCCAGAGATTAAAACTATTTTAAGTGGATTCATCATCAGAGGTTACTTGGGAA 852
          ||||||| || ||||| |||||||| || ||||| ||||| || || || || ||||| |
Db   3236 CTGGAATCCCTGAGATAAAAACTATCTTGAGTGGTTTCATTATTAGGGGCTATTTGGGTA 3295

Qy    853 AATGGACTTTAATGATTAAAACCATCACATTAGTCCTGGCTGTGGCATCAGGTTTGAGTT 912
          | |||||| |  | || |||||||||||| || || ||||| ||| | || || |||||
Db   3296 AGTGGACTCTGGTTATCAAAACCATCACCTTGGTGCTGGCAGTGTCGTCTGGCTTGAGCC 3355

Qy    913 TAGGAAAAGAAGGTCCCCTGGTACATGTTGCCTGTTGCTGCGGAAATATCTTTTCCTACC 972
          | || ||||| || || || || || || || || || ||||| || || ||| | | | ||
Db   3356 TGGGCAAAGAGGGCCCTCTAGTGCACGTGGCTTGCTGCTGTGGGAACATCCTGTGCCACT 3415

Qy    973 TCTTTCCAAAGTATAGCACAAACGAAGCTAAAAAAAGGGAGGTGCTATCAGCTGCCTCAG 1032
            |||     || || || |  || ||||| ||     || |||||  | || |||||  |||
Db   3416 GCTTCAACAAATACAGGAAGAATGAAGCCAAGCGCAGAGAGGTCTTGTCGGCTGCAGCAG 3475

Qy   1033 CTGCAGGGGTTTCTGTAGCTTTTGGTGCACCAATTGGAGGAGTTCTTTTTAGCCTGGAAG 1092
          | || || || |||||||| ||||| ||||| || || |||||  | || ||||| ||||
Db   3476 CAGCTGGTGTATCTGTAGCCTTTGGAGCACCTATAGGTGGAGTATTATTCAGCCTTGAAG 3535

Qy   1093 AGGTTAGCTATTATTTTCCTCTCAAAACTTTATGGAGATCATTTTTTGCTGCTTTAGTGG 1152
          |||| ||||| |||||||| |||||||| || ||| | ||||| |||||||| || ||||
Db   3536 AGGTCAGCTACTATTTTCCCCTCAAAACATTGTGGCGTTCATTCTTTGCTGCCTTGGTGG 3595

Qy   1153 CTGCATTTGTTTTGAGGTCCATCAATCCATTTGGTAACAGCCGTCTGGTCCTTTTTTATG 1212
          | |||||   | |  | |||||||||||||||| |||||||| |||||| || |||||||
Db   3596 CAGCATTCACTCTACGCTCCATCAATCCATTTGGGAACAGCCGCCTGGTACTATTTTATG 3655

Qy   1213 TGGAGTATCATACACCATGGTACCTTTTTGAACTGTTTCCTTTTATTCTTCTAGGGGTAT 1272
          |||||| ||| || |||||| | || ||||| ||  | || || |||| || ||  |||
Db   3656 TGGAGTTTCACACCCCATGGCATCTCTTTGAGCTCGTGCCATTCATTCTGCTGGGCATAT 3715

Qy   1273 TTGGAGGGCTTTGGGGAGCCTTTTTCATTAGGGCAAATATTGCCTGGTGTCGTCGACGCA 1332
          |||| || || |||||||  | || ||  | |||| ||||||||||||||    || |
Db   3716 TTGGTGGTCTGTGGGGAGCACTGTTTATCCGCACAAACATTGCCTGGTGTCGGAAGCGAA 3775
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Qy   1333 AGTCCACGAAATTTGGAAAGTATCCCGTTCTGGAAGTCATTATTGTTGCAGCCATTACTG 1392
          || ||||  | || || |||||||| ||| | || ||  |  | ||  ||||||| ||||
Db   3776 AGACCACCCAGTTGGGCAAGTATCCTGTTATAGAGGTACTCGTCGTGACAGCCATCACTG 3835

Qy   1393 CTGTGATAGCCTTCCCTAATCCATACACTAGGCTAAACACCAGTGAACTGATCAAAGAGC 1452
          |  |  | || ||||| ||| |||||||| || | | ||| ||||| || ||    ||||
Db   3836 CCATCCTGGCTTTCCCCAATGAATACACTCGGATGAGCACAAGTGAGCTCATTTCTGAGC 3895

Qy   1453 TTTTTACAGACTGTGGTCCCCTGGAATCCTCTTCTCTTTGTGACTACAGAAATGACATGA 1512
          | ||||  ||||||||  |  ||||| |||||     || ||||| ||     ||      | |
Db   3896 TGTTTAATGACTGTGGCCTTCTGGACTCCTCCAAGCTCTGTGATTATGAGAACCGTTTCA 3955

Qy   1513 ATGCCAGTAAAATTGTCGATGACATTCCTGATCGTCCAGCAGGCATTGGAGTATATTCAG 1572
          |  | || |||   |  | |||  | |||||  | || || ||| | ||||| ||    |
Db   3956 ACACAAGCAAA---GGGGGTGAACTGCCTGACAGACCGGCTGGCGTGGGAGTCTACAGTG 4012

Qy   1573 CTATATGGCAGTTATGCCTGGCACTCATATTTAAAATCATAATGACAGTATTCACTTTTG 1632
          | || |||||| |      |  |||||||| | |||||  | || ||  |||||||| ||||
Db   4013 CAATGTGGCAGCTGGCTTTAACACTCATACTGAAAATTGTCATTACTATATTCACCTTTG 4072

Qy   1633 GCATCAAGGTTCCATCAGGCTTGTTCATCCCCAGCATGGCCATTGGAGCGATCGCAGGAA 1692
          |||| ||| | || || ||| | || ||||| ||||||||  |||| || || |||||
Db   4073 GCATGAAGATCCCTTCTGGCCTCTTTATCCCTAGCATGGCTGTTGGTGCTATAGCAGGTC 4132

Qy   1693 GGATTGTGGGGATTGCGGTGGAGCAGCTTGCCTACTATCACCACGACTGGTTTATCTTTA 1752
          |  || | ||  | |   |||| ||||| || || || ||||| || |||    |||| |
Db   4133 GACTTCTAGGAGTAGGAATGGAACAGCTGGCTTATTACCACCAGGAATGGACCGTCTTCA 4192

Qy   1753 AGGAGTGGTGTGAGGTCGGGGCTGATTGCATTACACCTGGCCTTTATGCCATGGTTGGTG 1812
          |    ||||||      || |||||||||| || || |||||||||| ||||||||  |
Db   4193 ATAGCTGGTGTAGTCAGGGAGCTGATTGCATCACCCCCGGCCTTTATGCAATGGTTGGGG 4252

Qy   1813 CTGCTGCATGCTTAGGTGGTGTGACAAGAATGACTGTCTCCCTGGTGGTTATTGTTTTTG 1872
          |||| || ||||||
Db   4253 CTGCAGCCTGCTTA---------------------------------------------- 4266

Qy   1873 AGCTTACTGGAGGCTTGGAATATATTGTTCCCCTTATGGCTGCAGTCATGACCAGTAAAT 1932

Db   4267 ------------------------------------------------------------ 4266

Qy   1933 GGGTTGGAGATGCCTTTGGCAGGGAAGGCATTTATGAAGCACACATCCGATTAAATGGAT 1992

Db   4267 ------------------------------------------------------------ 4266

Qy   1993 ACCCTTTCTTGGATGCAAAAGAAGAATTCACTCATACCACCCTGGCTGCTGACGTTATGA 2052
                    || |||||||| ||  ||||||  ||||||||    || || ||||
Db   4267 -------------GCCAAAGAAGAGTTTGCTCATAAGACCCTGGCAATGGATGTGATGA 4312

Qy   2053 GACCTCGAAGGAATGATCCTCCCTTAGCTGTCCTGACACAGGACAATATGACAGTGGATG 2112
            ||| || || |||||||||    ||  ||||||| || ||||||| ||||||  ||||| |
Db   4313 AACCCCGGAGAAATGATCCTTTGTTGACTGTCCTTACTCAGGACAGTATGACTGTGGAAG 4372

Qy   2113 ATATAGAAAACATGATTAATGAAACCAGCTACAATGGATTTCCTGTCATAATGTCAAAAG 2172
          || |||| | ||| || | ||||||||  |||| ||| || || ||  |  | ||    |
Db   4373 ATGTAGAGACCATAATCAGTGAAACCACTTACAGTGGCTTCCCAGTGGTGGTATCCCGGG 4432

Qy   2173 AATCTCAGAGATTAGTGGGATTTGCCCTCAGAAGAGACCTGACAATTGCAATAGAAAGTG 2232
          | || || ||| | ||||| |||| |||| ||||||| || |  ||| |||| |||| ||
Db   4433 AGTCCCAAAGACTTGTGGGCTTTGTCCTCCGAAGAGATCTCATTATTTCAATTGAAAATG 4492

Qy   2233 CCAGGAAAAAACAAGAAGGTATCGTTGGCAGTTCTCGGGTGTGTTTTGCACAGCACACCC 2292
          |  | || ||||| || ||  | ||| ||| |||     | | ||| .|  ||||  | |
Db   4493 CTCGAAAGAAACAGGATGGGGTTGTTAGCACTTCCATCATTTATTTCACGGAGCATTCTC 4552

Qy   2293 CATCTCTTCCAGCAGAAAGTCCTCGGCCATTGAAGCTTCGAAGCATTCTTGACATGAGCC 2352
          |  | .| ||| || | | ||| |   |  | |||||||| | ||| || ||  | ||||
Db   4553 CTCCATTGCCACCATACACTCCACCCACTCTAAAGCTTCGGAACATCCTCGATCTCAGCC 4612

Qy   2353 CTTTTACAGTGACAGACCACACCCCAATGGAGATTGTGGTGGATATTTTCCGAAAGCTGG 2412
          | || || ||||| |||| || || |||||||| || ||||||||||||||||||||||
Db   4613 CCTTCACTGTGACTGACCTTACACCCATGGAGATCGTAGTGGATATTTTCCGAAAGCTGG 4672

Qy   2413 GACTGAGGCAGTGCCTTGTAACTCACAATGGGCGCCTCCTTGGCATTATAACAAAAAAAG 2472
          |||||  |||||||||| || || |||||  |||||  | |||||  || || || |||||  |
Db   4673 GACTGCGGCAGTGCCTGGTTACACACAACGGGCGATTGCTTGGAATCATTACCAAAAAGG 4732

Qy   2473 ATATCCTCCGGCATATGGCCCAGACGGCAAACCAAGACCCCGCTTCAATAATGTTCAACT 2532
          || |  |  |||||| || |||| ||| |||||||| || | ||| ||  | |||||||
Db   4733 ATGTGTTAAAGCATATAGCACAGATGGCGAACCAAGATCCTGATTCCATTCTCTTCAACT 4792
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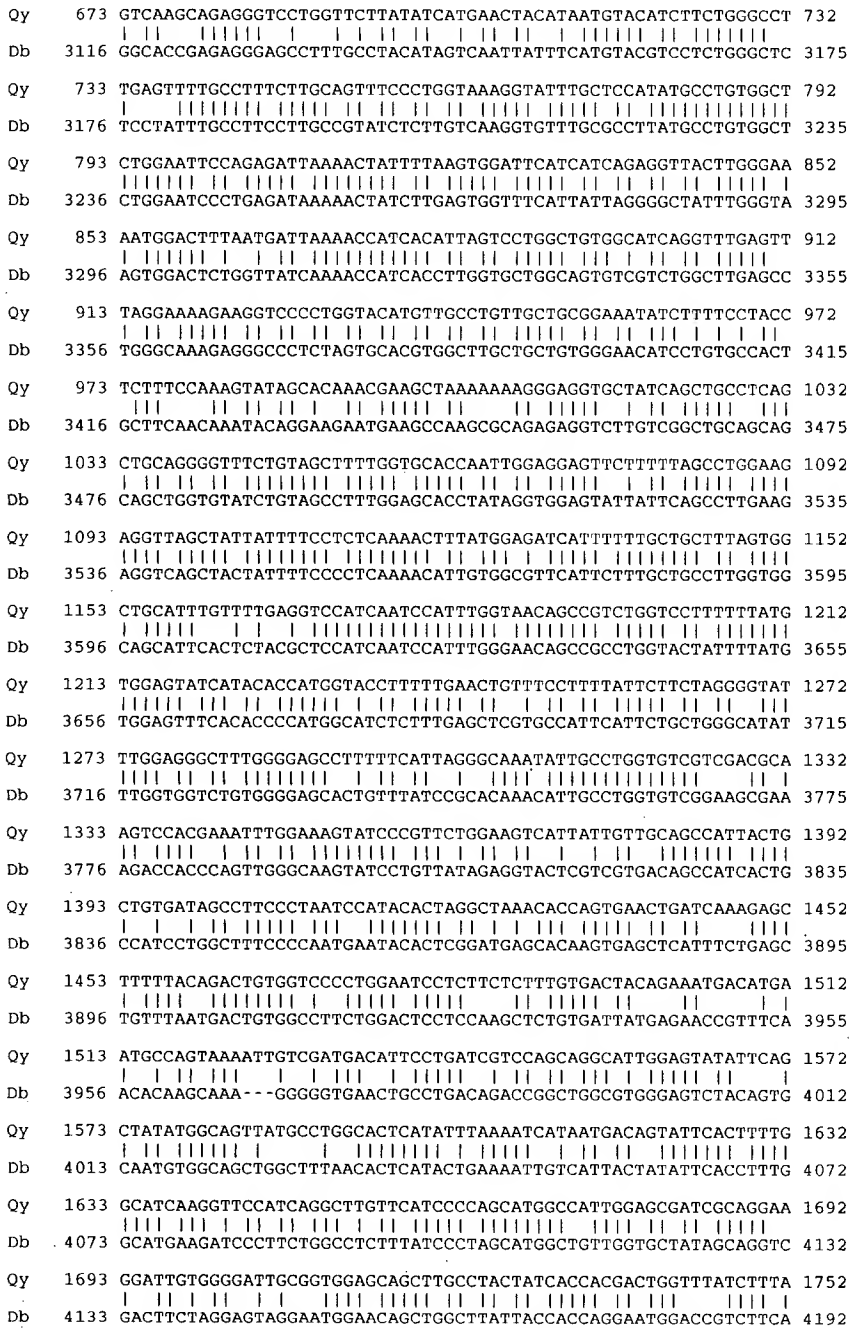
RESULT 14
AAS74999
ID AAS74999 standard; cDNA; 4794 BP.
XX
AC AAS74999;
XX
DT 13-FEB-2002 (first entry)
XX
DE DNA encoding novel human diagnostic protein #10803.
XX
KW Human; chromosome mapping; gene mapping; gene therapy; forensic;
KW food supplement; medical imaging; diagnostic; genetic disorder; ss.
XX
OS Homo sapiens.
XX
PN WO200175067-A2.
XX
PD 11-OCT-2001.
XX
PF 30-MAR-2001; 2001WO-US08631.
XX
PR 31-MAR-2000; 2000US-0540217.
PR 23-AUG-2000; 2000US-0649167.
XX
PA (HYSE-) HYSEQ INC.
XX
PI Drmanac RT, Liu C, Tang YT;
XX
DR WPI; 2001-639362/73.
DR P-PSDB; ABG10812.
XX
PT New isolated polynucleotide and encoded polypeptides, useful in
PT diagnostics, forensics, gene mapping, identification of mutations
PT responsible for genetic disorders or other traits and to assess
PT biodiversity -
XX
PS Claim 1; SEQ ID No 10803; 103pp; English.
XX
CC The invention relates to isolated polynucleotide (I) and
CC polypeptide (II) sequences. (I) is useful as hybridisation probes,
CC polymerase chain reaction (PCR) primers, oligomers, and for chromosome
CC and gene mapping, and in recombinant production of (II). The
CC polynucleotides are also used in diagnostics as expressed sequence tags
CC for identifying expressed genes. (I) is useful in gene therapy techniques
CC to restore normal activity of (II) or to treat disease states involving
CC (II). (II) is useful for generating antibodies against it, detecting or
CC quantitating a polypeptide in tissue, as molecular weight markers and as
CC a food supplement. (II) and its binding partners are useful in medical
CC imaging of sites expressing (II). (I) and (II) are useful for treating
CC disorders involving aberrant protein expression or biological activity.
CC The polypeptide and polynucleotide sequences have applications in
CC diagnostics, forensics, gene mapping, identification of mutations
CC responsible for genetic disorders or other traits to assess biodiversity
CC and to produce other types of data and products dependent on DNA and
CC amino acid sequences. AAS64197-AAS94564 represent novel human
CC diagnostic coding sequences of the invention.
CC Note: The sequence data for this patent did not appear in the printed
CC specification, but was obtained in electronic format directly from WIPO
CC at ftp.wipo.int/pub/published_pct_sequences.
XX
SQ Sequence 4794 BP; 1655 A; 1089 C; 960 G; 1090 T; 0 other;

Query Match 19.3%; Score 701.2; DB 23; Length 4794;
Best Local Similarity 64.2%; Pred. No. 9.7e-99;
Matches 1194; Conservative 0; Mismatches 483; Indels 183; Gaps 2;



RESULT 15
AAS84089
ID AAS84089 standard; cDNA; 4794 BP.
XX
AC AAS84089;
XX
DT 13-FEB-2002 (first entry)
XX
DE DNA encoding novel human diagnostic protein #19893.
XX
KW Human; chromosome mapping; gene mapping; gene therapy; forensic;
KW food supplement; medical imaging; diagnostic; genetic disorder; ss.
XX
OS Homo sapiens.
XX
PN WO200175067-A2.
XX
PD 11-OCT-2001.
XX
PF 30-MAR-2001; 2001WO-US08631.

```
XX
PR   31-MAR-2000; 2000US-0540217.
PR   23-AUG-2000; 2000US-0649167.
XX
PA   (HYSE-) HYSEQ INC.
XX
PI   Drmanac RT,  Liu C,  Tang YT;
XX
DR   WPI; 2001-639362/73.
DR   P-PSDB; ABG19902.
XX
PT   New isolated polynucleotide and encoded polypeptides, useful in
PT   diagnostics, forensics, gene mapping, identification of mutations
PT   responsible for genetic disorders or other traits and to assess
PT   biodiversity  -
XX
PS   Claim 1; SEQ ID No 19893; 103pp; English.
XX
CC   The invention relates to isolated polynucleotide (I) and
CC   polypeptide (II) sequences. (I) is useful as hybridisation probes,
CC   polymerase chain reaction (PCR) primers, oligomers, and for chromosome
CC   and gene mapping, and in recombinant production of (II). The
CC   polynucleotides are also used in diagnostics as expressed sequence tags
CC   for identifying expressed genes. (I) is useful in gene therapy techniques
CC   to restore normal activity of (II) or to treat disease states involving
CC   (II). (II) is useful for generating antibodies against it, detecting or
CC   quantitating a polypeptide in tissue, as molecular weight markers and as
CC   a food supplement. (II) and its binding partners are useful in medical
CC   imaging of sites expressing (II). (I) and (II) are useful for treating
CC   disorders involving aberrant protein expression or biological activity.
CC   The polypeptide and polynucleotide sequences have applications in
CC   diagnostics, forensics, gene mapping, identification of mutations
CC   responsible for genetic disorders or other traits to assess biodiversity
CC   and to produce other types of data and products dependent on DNA and
CC   amino acid sequences. AAS64197-AAS94564 represent novel human
CC   diagnostic coding sequences of the invention.
CC   Note: The sequence data for this patent did not appear in the printed
CC   specification, but was obtained in electronic format directly from WIPO
CC   at ftp.wipo.int/pub/published_pct_sequences.
XX
SQ   Sequence 4794 BP; 1655 A; 1089 C; 960 G; 1090 T; 0 other;

  Query Match             19.3%;  Score 701.2;  DB 23;  Length 4794;
  Best Local Similarity   64.2%;  Pred. No. 9.7e-99;
  Matches 1194;  Conservative    0;  Mismatches  483;  Indels  183;  Gaps    2;

Qy     673 GTCAAGCAGAGGGTCCTGGTTCTTATATCATGAACTACATAATGTACATCTTCTGGGCCT 732
Db    3116 GGCACCGAGAGGGAGCCTTTGCCTACATAGTCAATTATTTCATGTACGTCCTCTGGGCTC 3175

Qy     733 TGAGTTTTGCCTTTCTTGCAGTTTCCCTGGTAAAGGTATTTGCTCCATATGCCTGTGGCT 792
Db    3176 TCCTATTTGCCTTCCTTGCCGTATCTCTTGTCAAGGTGTTTGCGCCTTATGCCTGTGGCT 3235

Qy     793 CTGGAATTCCAGAGATTAAAACTATTTTAAGTGGATTCATCATCAGAGGTTACTTGGGAA 852
Db    3236 CTGGAATCCCTGAGATAAAAACTATCTTGAGTGGTTTCATTATTAGGGGCTATTTGGGTA 3295

Qy     853 AATGGACTTTAATGATTAAAACCATCACATTAGTCCTGGCTGTGGCATCAGGTTTGAGTT 912
Db    3296 AGTGGACTCTGGTTATCAAAACCATCACCTTGGTGCTGGCAGTGTCGTCTGGCTTGAGCC 3355

Qy     913 TAGGAAAAGAAGGTCCCCTGGTACATGTTGCCTGTTGCTGCGGAAATATCTTTTCCTACC 972
Db    3356 TGGGCAAAGAGGGCCCTCTAGTGCACGTGGCTTGCTGCTGTGGGAACATCCTGTGCCACT 3415

Qy     973 TCTTTCCAAAGTATAGCACAAACGAAGCTAAAAAAAGGGAGGTGCTATCAGCTGCCTCAG 1032
Db    3416 GCTTCAACAAATACAGGAAGAATGAAGCCAAGCGCAGAGAGGTCTTGTCGGCTGCAGCAG 3475

Qy    1033 CTGCAGGGGTTTCTGTAGCTTTTGGTGCACCAATTGGAGGAGTTCTTTTTAGCCTGGAAG 1092
Db    3476 CAGCTGGTGTATCTGTAGCCTTTGGAGCACCTATAGGTGGAGTATTATTCAGCCTTGAAG 3535

Qy    1093 AGGTTAGCTATTATTTTCCTCTCAAAACTTTATGGAGATCATTTTTTGCTGCTTTAGTGG 1152
Db    3536 AGGTCAGCTACTATTTTCCCCTCAAAACATTGTGGCGTTCATTCTTTGCTGCCTTGGTGG 3595

Qy    1153 CTGCATTTGTTTTGAGGTCCATCAATCCATTTGGTAACAGCCGTCTGGTCCTTTTTTATG 1212
Db    3596 CAGCATTCACTCTACGCTCCATCAATCCATTTGGGAACAGCCGCCTGGTACTATTTTATG 3655

Qy    1213 TGGAGTATCATACACCATGGTACCTTTTTGAACTGTTTCCTTTTATTCTTCTAGGGGTAT 1272
Db    3656 TGGAGTTTCACACCCCATGGCATCTCTTTGAGCTCGTGCCATTCATTCTGCTGGGCATAT 3715

Qy    1273 TTGGAGGGCTTTGGGGAGCCTTTTTCATTAGGGCAAATATTGCCTGGTGTCGTCGACGCA 1332
Db    3716 TTGGTGGTCTGTGGGGAGCACTGTTTATCCGCACAAACATTGCCTGGTGTCGGAAGCGAA 3775

Qy    1333 AGTCCACGAAATTTGGAAAGTATCCCGTTCTGGAAGTCATTATTGTTGCAGCCATTACTG 1392
Db    3776 AGACCACCCAGTTGGGCAAGTATCCTGTTATAGAGGTACTCGTCGTGACAGCCATCACTG 3835

Qy    1393 CTGTGATAGCCTTCCCTAATCCATACACTAGGCTAAACACCAGTGAACTGATCAAAGAGC 1452
Db    3836 CCATCCTGGCTTTCCCCAATGAATACACTCGGATGAGCACAAGTGAGCTCATTTCTGAGC 3895

Qy    1453 TTTTTACAGACTGTGGTCCCCTGGAATCCTCTTCTCTTTGTGACTACAGAAATGACATGA 1512
Db    3896 TGTTTAATGACTGTGGCCTTCTGGACTCCTCCAAGCTCTGTGATTATGAGAACCGTTTCA 3955

Qy    1513 ATGCCAGTAAAATTGTCGATGACATTCCTGATCGTCCAGCAGGCATTGGAGTATATTCAG 1572
Db    3956 ACACAAGCAAA---GGGGGTGAACTGCCTGACAGACCGGCTGGCGTGGGAGTCTACAGTG 4012

Qy    1573 CTATATGGCAGTTATGCCTGGCACTCATATTTAAAATCATAATGACAGTATTCACTTTTG 1632
Db    4013 CAATGTGGCAGCTGGCTTTAACACTCATACTGAAAATTGTCATTACTATATTCACCTTTG 4072

Qy    1633 GCATCAAGGTTCCATCAGGCTTGTTCATCCCCAGCATGGCCATTGGAGCGATCGCAGGAA 1692
Db    4073 GCATGAAGATCCCTTCTGGCCTCTTTATCCCTAGCATGGCTGTTGGTGCTATAGCAGGTC 4132

Qy    1693 GGATTGTGGGGATTGCGGTGGAGCAGCTTGCCTACTATCACCACGACTGGTTTATCTTTA 1752
Db    4133 GACTTCTAGGAGTAGGAATGGAACAGCTGGCTTATTACCACCAGGAATGGACCGTCTTCA 4192

Qy    1753 AGGAGTGGTGTGAGGTCGGGGCTGATTGCATTACACCTGGCCTTTATGCCATGGTTGGTG 1812
Db    4193 ATAGCTGGTGTAGTCAGGGAGCTGATTGCATCACCCCCGGCCTTTATGCAATGGTTGGGG 4252

Qy    1813 CTGCTGCATGCTTAGGTGGTGTGACAAGAATGACTGTCTCCCTGGTGGTTATTGTTTTTG 1872
Db    4253 CTGCAGCCTGCTTA---------------------------------------------- 4266

Qy    1873 AGCTTACTGGAGGCTTGGAATATATTGTTCCCCTTATGGCTGCAGTCATGACCAGTAAAT 1932
Db    4267 ------------------------------------------------------------ 4266

Qy    1933 GGGTTGGAGATGCCTTTGGCAGGGAAGGCATTTATGAAGCACACATCCGATTAAATGGAT 1992
Db    4267 ------------------------------------------------------------ 4266

Qy    1993 ACCCTTTCTTGGATGCAAAAGAAGAATTCACTCATACCACCCTGGCTGCTGACGTTATGA 2052
Db    4267 --------------GCCAAAGAAGAGTTTGCTCATAAGACCCTGGCAATGGATGTGATGA 4312

Qy    2053 GACCTCGAAGGAATGATCCTCCCTTAGCTGTCCTGACACAGGACAATATGACAGTGGATG 2112
Db    4313 AACCCCGGAGAAATGATCCTTTGTTGACTGTCCTTACTCAGGACAGTATGACTGTGGAAG 4372

Qy    2113 ATATAGAAAACATGATTAATGAAACCAGCTACAATGGATTTCCTGTCATAATGTCAAAAG 2172
Db    4373 ATGTAGAGACCATAATCAGTGAAACCACTTACAGTGGCTTCCCAGTGGTGGTATCCCGGG 4432
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Qy    2173 AATCTCAGAGATTAGTGGGATTTGCCCTCAGAAGAGACCTGACAATTGCAATAGAAAGTG 2232
           | || || ||| | ||||| |||| |||| ||||||| || |  ||| |||| |||| ||
Db    4433 AGTCCCAAAGACTTGTGGGCTTTGTCCTCCGAAGAGATCTCATTATTTCAATTGAAAATG 4492

Qy    2233 CCAGGAAAAAAACAAGAAGGTATCGTTGGCAGTTCTCGGGTGTGTTTTGCACAGCACACCC 2292
           |  | || ||||| || ||  | ||| ||| |||     | | |||  |  ||||  | |
Db    4493 CTCGAAAGAAACAGGATGGGGTTGTTAGCACTTCCATCATTTATTTCACGGAGCATTCTC 4552

Qy    2293 CATCTCTTCCAGCAGAAAGTCCTCGGCCATTGAAGCTTCGAAGCATTCTTGACATGAGCC 2352
           |  |  | ||| || | | ||| |   |  | |||||||| | ||| || ||  | ||||
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Qy    2353 CTTTTACAGTGACAGACCACACCCCAATGGAGATTGTGGTGGATATTTTCCGAAAGCTGG 2412
           | || || ||||| ||||  || || |||||||| || ||||||||||||||||||||
Db    4613 CCTTCACTGTGACTGACCTTACACCCATGGAGATCGTAGTGGATATTTTCCGAAAGCTGG 4672

Qy    2413 GACTGAGGCAGTGCCTTGTAACTCACAATGGGCGCCTCCTTGGCATTATAACAAAAAAAG 2472
           ||||| |||||||||| || || ||||| |||||  | ||||| || || || ||||| |
Db    4673 GACTGCGGCAGTGCCTGGTTACACACAACGGGCGATTGCTTGGAATCATTACCAAAAAGG 4732

Qy    2473 ATATCCTCCGGCATATGGCCCAGACGGCAAACCAAGACCCCGCTTCAATAATGTTCAACT 2532
           || |  |   |||||| || |||| ||| |||||||| || | ||| ||  | |||||||
Db    4733 ATGTGTTAAAGCATATAGCACAGATGGCGAACCAAGATCCTGATTCCATTCTCTTCAACT 4792
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Search completed: May 15, 2003, 03:00:04
Job time : 821 secs